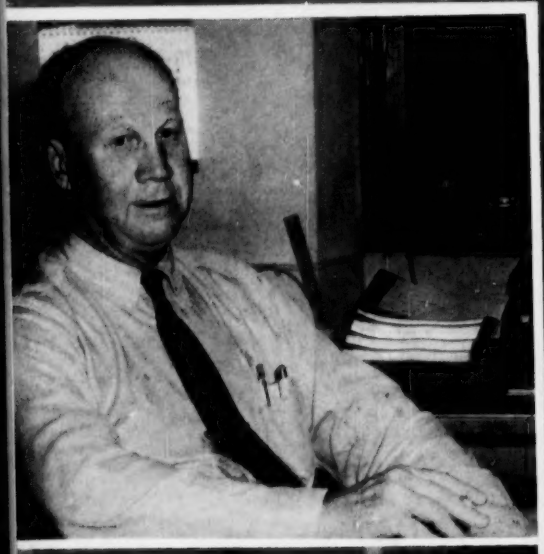
Chemical Week

July 16, 1955 Price 35 cents



Where guaranteed annual wage demands would pinch worst: fertilizers, fats processing . . . p. 20

Tom Dillon assesses synthetic vs natural fibers, foresees research-won gains for both . . . . p. 38

Triple good news for traffic managers: on rates, freight-car supply, pallet charges . . . p. 46

Look for new, needed polyethylene markets in disposable sheets, diapers, other film uses . . . p. 69

Consultant Mahoney points to higher construction costs, urges yardsticks for close control . p. 74

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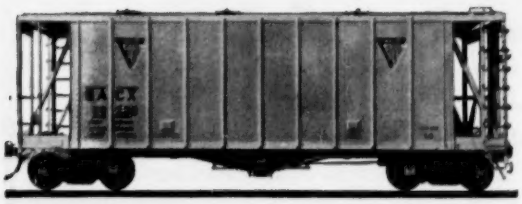

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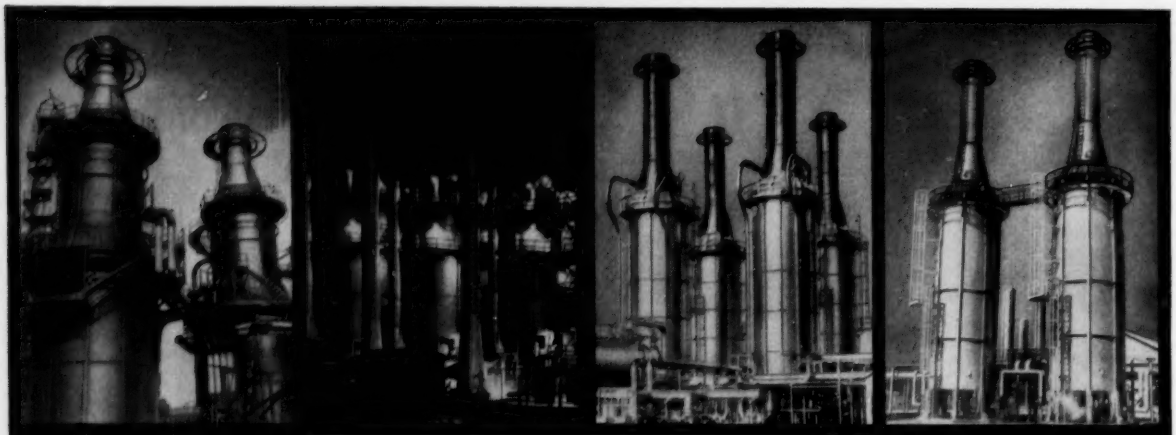

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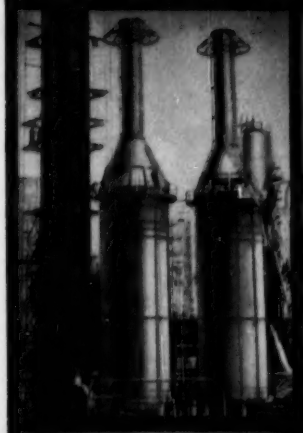

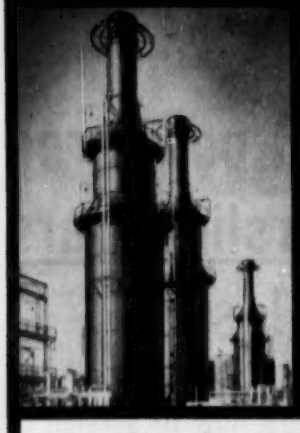

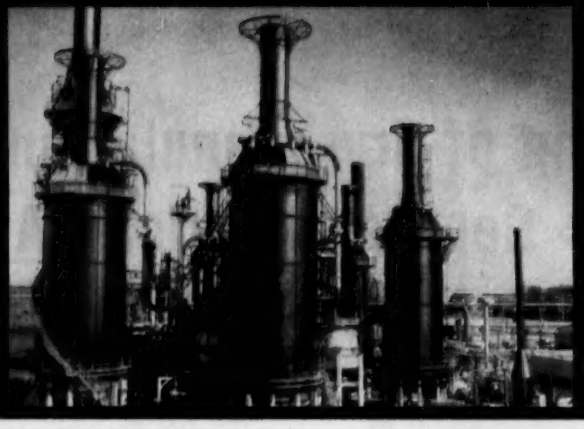

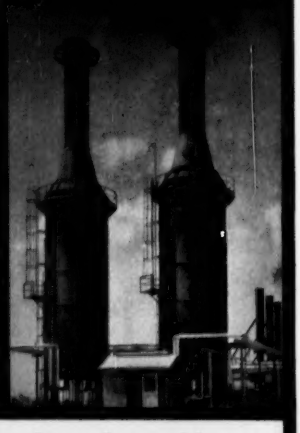

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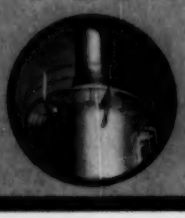

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Protect construction investment with cost yardsticks, urges consultant

make continuous quality a part of continuous processing

Speed is profit these days, and it follows that—the more continuous you can make your processing—the more continuous can be your profit . . . *sometimes!*

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OPINION . . .

Tamed Titanates

TO THE EDITOR: I have read with interest the news article "Sound Prospects for Tamed Titanates" (*June 25, p. 64*) . . .

. . . What I particularly liked in your account was the lead sentence, which reminds your readers that "research needn't be spectacular in concept to yield results of far-reaching importance." Then, too, the account of the cooperative roles of industry and the Naval Research Laboratory was handled in a straightforward manner that is helpful to the cause of government-industry teamwork . . .

S. M. TUCKER
Director
Naval Research Laboratory
Washington, D. C.

'Wash-and-Wear'

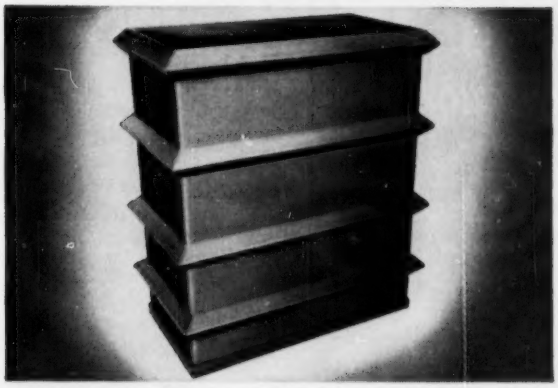
TO THE EDITOR: We wish to compliment you on the "Wash-and-Wear War" news article—(*June 25, p. 86*). The writer showed knowledge of the subject and a fair editorial approach . . .

You did not mention, however, our Disciplined Fabrics, which have been on the market for over five years and come closer to meeting "no-iron," "wash-and-wear," and similar claims than any of the treated cottons mentioned and yet we have . . . chosen not to make such claims. In fact, part of the reason for the recent "no-iron" promotions is to try to break our position in the field, fully as much as it is to buck the "no-iron" claims made for some of the synthetic fibers.

We developed and have sold millions of yards over the last two years of a white anticrease line of fabrics that is immune to chlorine bleaches and to the traditional problems of the urea-formaldehyde, melamine, and "reactant" resins of types referred to in your article. This has proved satisfactory for items such as nurse's uni-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N. Y.



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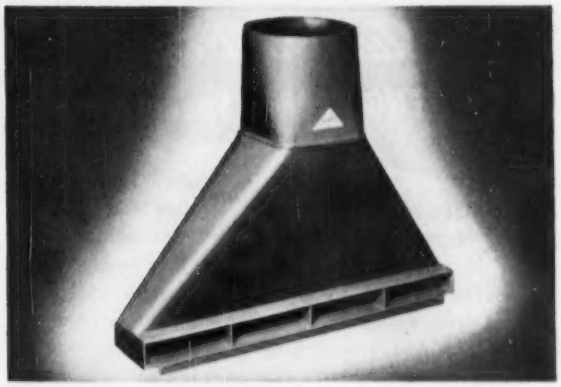
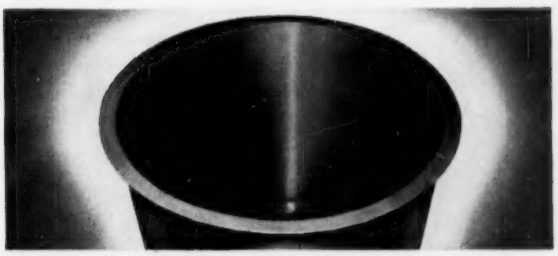
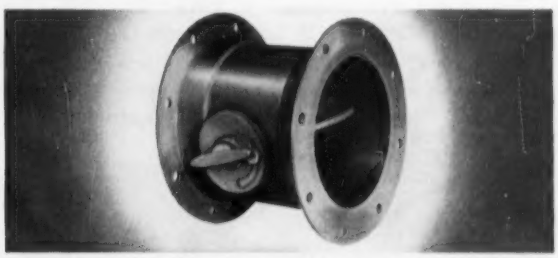


FUME DUCT MADE FROM HAVEG 1810 PVC is both low cost and planned to meet your system's needs. Haveg's Engineering Department works with you for simplicity of design, ease in shipping, installing, and maintaining.



HAVEG ALSO LINES TANKS WITH HAVEG 1810 PVC. Steel, wood or concrete tanks can be made serviceable, completely corrosion-resistant, with a tightly bonded PVC lining. Haveg uses a special PVC laminate, can do work in the field.



HAVEG FABRICATES PVC into special butterfly dampers that can be installed in either round or rectangular fume duct. Dampers are instantly adjustable and locked in place, contain few parts. Let Haveg make special items for you.

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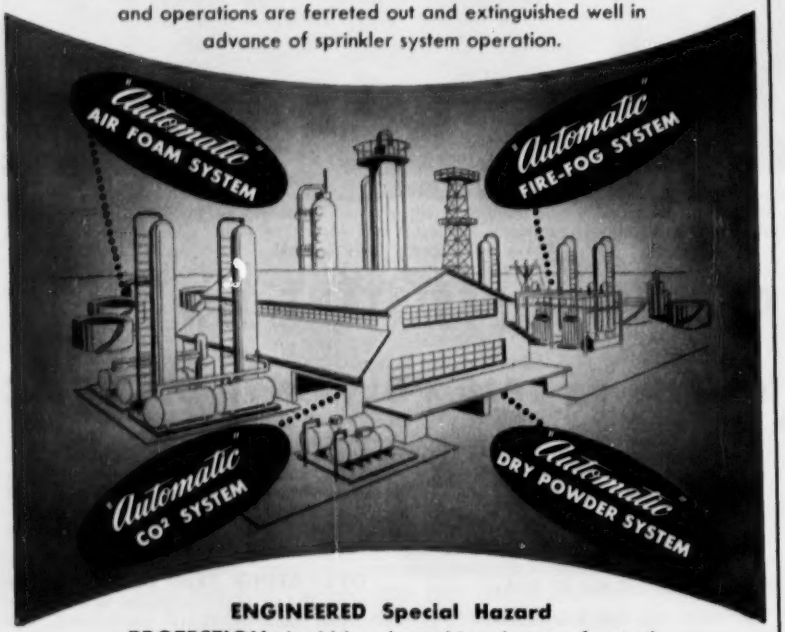

ENGINEERED Special Hazard PROTECTION should be planned in advance of actual plant production, and the proper safeguard incorporated in the design or set-up of the equipment. In this way, out-of-service time and costly future alterations can be eliminated.

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forms, men's dress shirts and other garments that are subjected to a bleach at every wash cycle.

Since the resin and process have not been publicly disclosed for obvious reasons, and involve a chemical source not normally associated with textile affairs, a reporter making a survey would not come upon it. . . .

R. D. WELLS
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Lewiston, Maine

Mental Drugs

TO THE EDITOR: I congratulate you for the very fine news article titled "Enigma: How to Sell Mental Drugs" (*June 18, p. 78*). It seemed to me to be a well-rounded, factual and sensible feature on ethical promotion of drugs useful in the mental health field. . .

G. F. ROLL
Manager
Public Relations Dept.
Smith, Kline & French Laboratories
Philadelphia, Pa.

DATES AHEAD . . .

American Soybean Assn., Natl. Soybean Processors Assn., joint meeting, Netherlands Plaza Hotel, Cincinnati, Aug. 29-31.

National Agricultural Chemicals Assn., annual meeting, Essex and Sussex Hotel, Spring Lake, N.J., Sept. 7-9.

Federal Wholesale Druggists Assn., annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Sept. 11-14.

American Chemical Society, 128th national meeting, Minneapolis, Minn., Sept. 11-16.

National Petroleum Assn., annual meeting, Traymore Hotel, Atlantic City, Sept. 14-16.

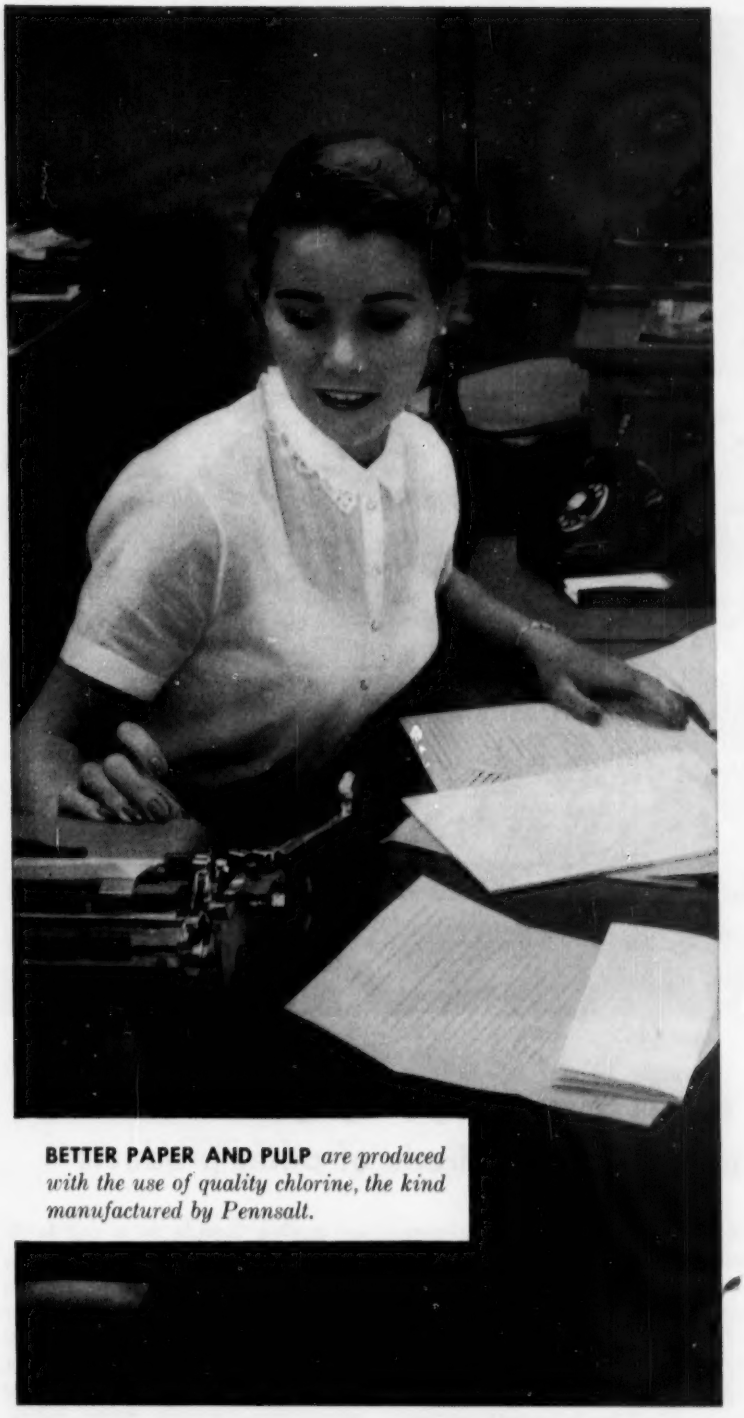
Packaging Machinery Mfg. Institute, annual meeting, The Homestead, Hot Springs, Va., Sept. 15-18.

American Assn. of Textile Chemists and Colorists, Atlantic City, N.J., Sept. 22-25.

Atomic Industry Trade Fair, Sheraton-Park Hotel, Washington, D.C., Sept. 26-30.

Federation of Paint and Varnish Production Clubs, annual meeting and Paint Industries' Show, Statler Hotel, New York, Oct. 3-5.

Congress on Analytical Chemistry, Lisbon, Portugal, Sept. 9-16, 1956.



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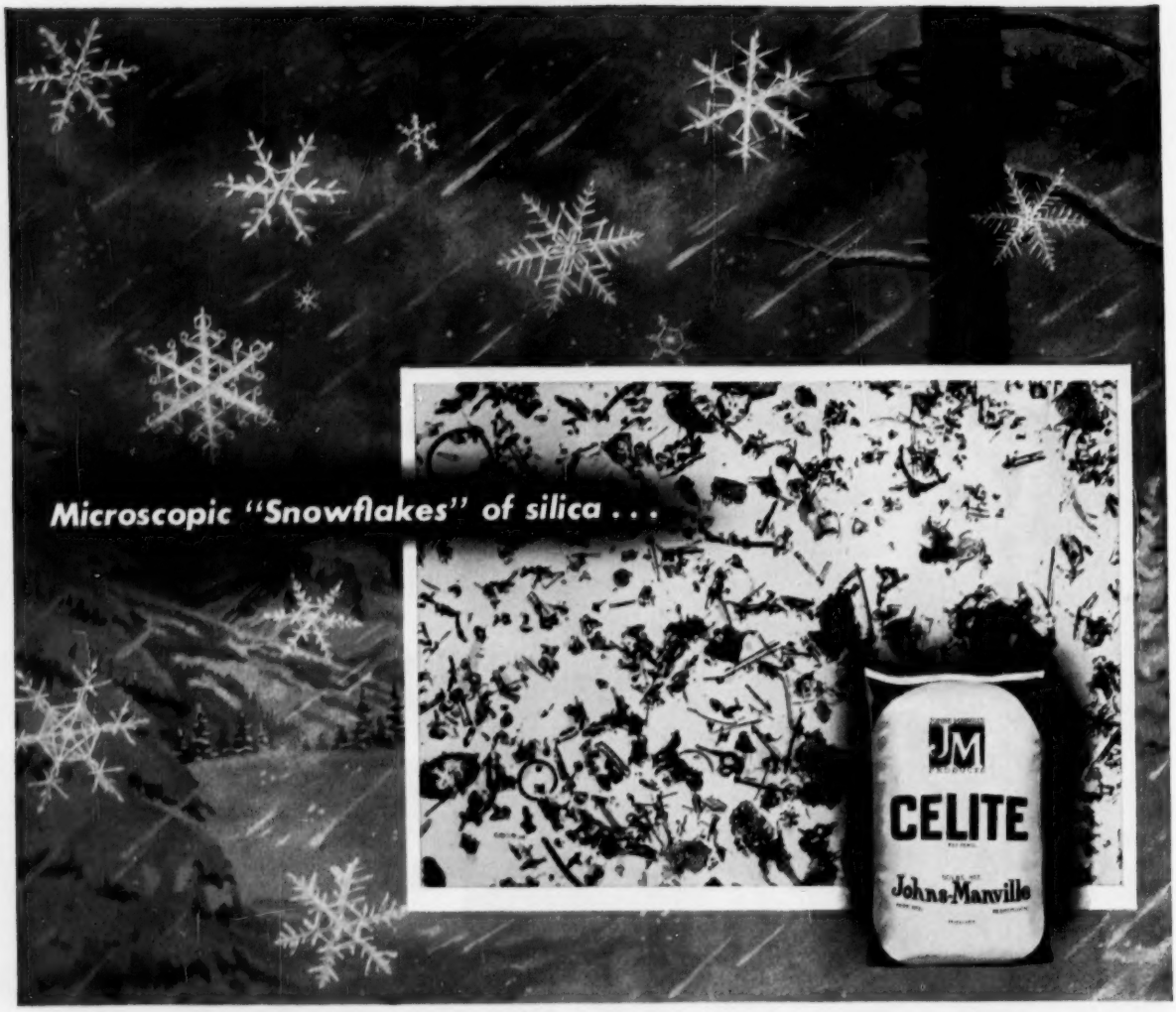

Celite's diatomite structure steps up performance

in paints—plastics—polishes . . . hundreds of other products

MICROSCOPIC PARTICLES of Celite* do a man-size job of stepping up performance for many of America's leading products. Here is how the unique structure of Celite Diatomite Powders may add more beauty, longer life, greater efficiency to *your* products, too.

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NEWSLETTER

Latest *CW* barometer reading on the state of the chemical industry points out two main forecasts for the rest of '55:

Sales in the second half of the year should match or come close to first half records. This means an all-time business activity for the entire year, over $22 billion—12-15% ahead of the pace registered in 1954.

U. S. chemical firms—by the score—are lining up international agreements—finding expansion opportunities abroad.

•

Most recent to broaden its international business: Devoe & Raynolds, Inc., which signed last week an exclusive foreign epoxy resin patent agreement with the Royal Dutch Shell group.

•

Invading the Puerto Rican market (on a much smaller scale): PolyPane Packing Co., Inc. (maker of polyethylene sheet and film), with headquarters in Philadelphia.

Unlike most U. S. manufacturers, which establish only branches abroad, PolyPane will concentrate its production facilities in the islands, expects to rack up $3 million in sales the first year in operation.

•

Still up for sale this week: the government-owned butadiene plant at Institute, W. Va.

But nibbles (and reports of nibbles) continue to grow. Current top candidate for purchase of the giant works: Imperial Commodities Corp., an 80% Dutch-controlled company.

If Imperial Commodities presses its bid, U. S. legislators may face another touchy decision. On the one hand, they may desire to keep the Institute plant intact as a defense measure; on the other, they could decide that enough synthetic rubber producing facilities in the U. S. are already "foreign-controlled."

Adding another debatable element to the picture: Imperial Commodities admittedly wants possession of the plant for overseas sales. Such a move would please U. S. synthetic rubber producers, might displease large blocs of congressmen.

•

Just a few hundred miles north of Washington: Communist countries are knocking on Canada's door—seeking to step up trade for the first time in many years.

Poland, for example, wants to trade cement and chemicals, will pay in dollars for imported Canadian goods. Significantly, it is the first time since World War II that a Communist satellite has approached Canada with such a proposal. Moreover, Poland is even willing to allow Canadian customs officers to enter Poland to check invoices, if the Dominion will but step up its trade program.

•

Behind the Olin Mathieson acquisition of Brown Paper Mill Co., Inc. (West Monroe, La.), last week: a desire to boost Olin Mathieson timber resources.

Brown (which was bought for $50 million in cash and 725,000

shares of Olin Mathieson common stock) possesses forests "equivalent to" 465,000 acres in Louisiana, East Texas, and Arkansas, also owns natural gas rights (in the acreage) of, as yet, unappraised value.

•

Petro-Tex Co.'s plans to expand butadiene production 50% at Houston (*CW, June 4, p. 37*) have been trimmed—but only temporarily.

In view of the fact that, at this time, Sinclair has no plans to expand its butylene production, it may become necessary for Petro-Tex to turn to other sources for raw material.

Good possibility: company officials will decide to buy butane (perhaps from Tennessee Gas, perhaps locally) and dehydrogenate.

•

The dispatch behind the Federal Trade Commission's decision to slap a restraint-of-trade charge against the Paint Dealers Institute of New York and several member associations of independent retailers (*see p. 27*) arises out of a similar case last year.

FTC got a quick complaint and a quick settlement when it faced the Brooklyn Paint & Wallpaper Dealers Institute with identical charges in 1954, signed the settlement almost before it realized, FTC claims, that five other members of the Institute were indulging in similar practices.

•

It would now appear that National Distillers Products' proposed isosebacic acid project is going ahead. Reason: last week the company asked for a $2,050,000 tax write-off for a plant to produce the butadiene-derived material; there's every indication that its request will be granted.

•

There's been a boost in government encouragement of pinene production in recent weeks. Latest to get a tax write-off increase: Arizona Chemical Co., which originally requested $635,000 in rapid amortization, now has the figure set at $1,391,000.

•

Off to a flying start with plans to build a $2.5-million ammonia-nitrogen products plant outside Phoenix, Ariz., is Southwest Agrochemical Corp.

Construction starts next fall; full operation (100 tons/day) is expected in a year and a half.

Output will be primarily for the 35 owners (mainly farmers), who will buy products at cost—a company-claimed saving of about 56% on ammonia.

This marks the second fertilizer plant planned for the Phoenix area this summer. Previously, Thunderbird Corp. purchased 122 acres in the same vicinity, will build a plant valued at $13 million.

•

The things they'll do to sell soap. Now it's hurry-up French courses for three Procter & Gamble executives assigned overseas.

Before they sailed for France, all three (and their wives) attended a special session at the American Institute for Foreign Trade at Phoenix.

Reason for inclusion of the distaff members of the family: American Institute instructors insist that wives can do more damage to foreign business relations by ignorance of language and customs than can businessmen themselves.

Dependable Source for Chemical Raw Materials

S. Giachetti, president of Linco Products Distributing Company. Linco distributes its famous household products within a 300-mile radius of Chicago.

"Bleach is a business based on quality"

—says S. Giachetti, president, Linco Products Distributing Company, Chicago, Ill.

Linco Products Distributing Company, Chicago, Illinois — makers of famous Linco Bleach and other household products — credits consistent high quality for the outstanding success of its business.

Says President S. Giachetti, "We protect our quality so zealously, that we purify and soften the water that goes into all our bleach. For purity comes first . . . after that, it's a sales problem.

"Naturally, we have high standards and strict specifications set up for everything that we buy on the outside. More than ten years of experience in using Wyandotte Caustic has proved to us that it is of consistent high quality, and meets our rigid specifications.

"We are also ten-year users of Wyandotte Chlorine. Wyandotte has shown that they are not only interested in selling us — they are interested in serving us in every way possible."

If you are looking for a dependable source of chemical raw materials — a source with a background of years of experience with many industries — contact Wyandotte Chemicals. You will find Wyandotte big enough to serve your needs, yet small enough to eliminate needless red tape in the solution of chemical problems within our area of experience. *Wyandotte Chemicals Corporation, Wyandotte, Mich. Offices in principal cities.*

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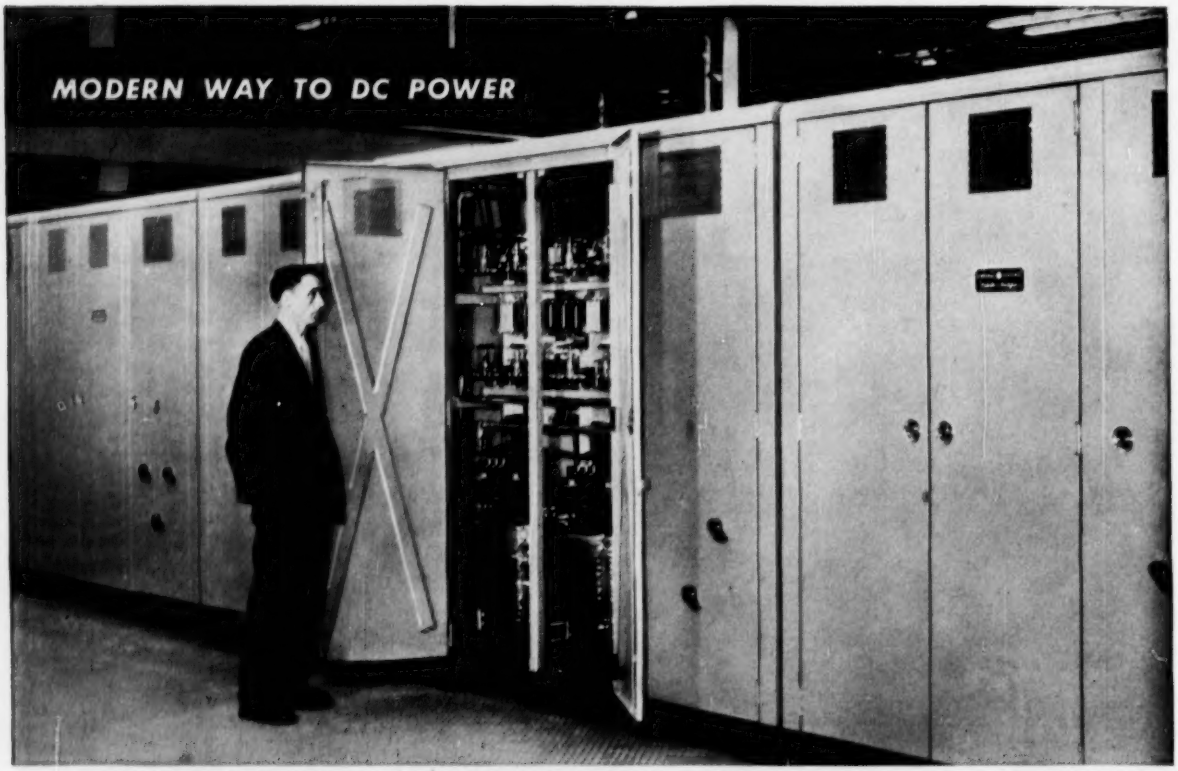

FRONT VIEW OF A SEVEN-CUBICLE ANODIZING INSTALLATION LOCATED AT G-E APPLIANCE PARK, LOUISVILLE, KY.

G-E Germanium Rectifiers Bring High Efficiency to Your Low-voltage Electrochemical Operations

High operating efficiencies not obtainable with any other type of conversion equipment, can now be brought to your low-voltage electroplating operations, with experience-proven General Electric germanium rectifiers. Even at voltages as low as 12 volts d-c, these units bring efficiencies as high as 90%. This results in power cost savings provided by other methods only at much higher voltages (usually in excess of 250 volts). At 65 volts d-c, used for many electrochemical operations, G-E germanium efficiency is 94%.*

LOWER VOLTAGES REQUIRED for germanium means safer working conditions in the cell room. And, because of the minimum of moving parts in a metallic rectifier, and absolute lack of aging in germanium cells, much less maintenance is required. Liquid-immersed cells used on these rectifier power supplies, are not affected by corrosive atmospheres.

General Electric draws upon more than four years of development, design, and application experience in the germanium rectifier field, to bring you these power supplies that make such advantages possible.

This germanium know-how has been gained from the production of over 5990 kilowatts of germanium rectifier power supplies that are now in operation! Another 5080 kilowatts are on order.

YOU CAN SAVE MONEY in the production of hydrogen, chlorine, lithium, or hydrogen peroxide, with a G-E germanium power supply. See how G-E germanium rectifiers can be your "Modern Way to DC Power." Contact your nearest G-E Apparatus Sales Office, or write Section 462-11, General Electric Co., Schenectady 5, N. Y.

*Measured in accordance with recognized ASA, AIEE and NEMA standards.

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July 16, 1955 • Volume 77 • Number 3

Chemical Week

BUSINESS & INDUSTRY. . . .

WIDE WORLD

BROWNELL: Wants legal barbs compelling companies to . . .

Turn Over Antitrust Documents

What could prove to be a telling move in future government prosecution of alleged antitrust violations was the subject of hot contention last week. Setting off the post-Fourth of July fireworks: Attorney General Herbert Brownell, Jr., who has proposed to Congress a law permitting the Justice Dept. to compel production of documents required in civil antitrust actions.

Whom It Concerns: Such a law, if passed, would apply to all corporations, partnerships and associations—but not to individuals whose personal testimony might be sought. Under current law, the Justice Dept. has to rely on grand jury action if it wants —and can't get—such information.

And such a procedure, Brownell reasons, not only delays investigative machinery, but is ineffective for adequate antitrust enforcement.

Specifically, here's how the proposed Brownell law would work:

Should the Attorney General believe anyone possesses documentary material bearing on an antitrust investigation, he would be empowered to issue a civil investigative "demand."

The demand would contain a description of the material sought— sufficiently definitive to permit its identification.

If the demand were refused, Justice could then ask a federal district court to enforce it. (Time limit for the company to make up its mind whether to produce or refuse: 20 days.)

A maximum of $5,000 fine (or five years imprisonment—or both) would be imposed for wilful evasion, falsification or destruction of documents.

Immediate Reaction: Heated industry reaction to the proposal swings about the potential danger of such a powerful law in the hands of "possible future Antitrust chiefs."

"What protection," one East Coast vice-president asks, "would the average chemical company have against unscrupulous legislators . . . who, once crying antitrust violation, could then turn the company's books wide open?"

Casting the Die

Legislation to authorize a greatly increased air pollution program was voted by the House of Representatives last week. And the Senate, which had passed a different bill, now agrees to the $25-million program.

Main pressure for increased attention to air pollution problems emanated from California representatives because of the Los Angeles County situation. However, Rep. Ross Bass (D., Tenn.), labeled pollution a "vital subject" to the "chemical industry area" of Tennessee, swung Southern support behind the measure.*

Top Interest Value: Of major interest to chemical makers is the House provision that would authorize federal financial and technical aid to industries and private groups interested in air pollution abatement, as well as to universities and state or local control agencies.

A point yet to be settled: who will man the advisory board on air pollution. Where the Senate would set up such a board and specify its membership, the House omits all references to it on the grounds that the Public Health Service, which will administer the research program, can handle the subject.

Both Senate and House, however, have authorized starting the program during the current fiscal year, which started July 1. And the Administration is preparing a request for money, which will be included in a forthcoming supplemental appropriations bill.

Real hurdle ahead is action by appropriations committees, which in the past have often turned down pollution grant requests despite previous Congressional authorization. It's not likely, therefore, that the full $25 million will be appropriated. But observers are betting that committee action on the current year's request will set the pattern for the next four years.

* His particular reference: to aluminum production, where fluorides released into the air have allegedly caused sickness in animals.

GERMANN: Tiptoeing a tortuous trail between . . .

Stockholders' Crossfire

What started out as a skirmish in Zurich last week over control of Interhandel (also known as I.G. Chemie) has now turned into a drawn battle. Heavy blocks of common stock holders are hotly demanding that management launch a lawsuit against the U.S. government in an effort to upset the April 7, 1952, Supreme Court decision regarding bona fide nonenemy shareholders of a neutral country—a decision that, they claim, upsets the International Claims Settlement Act.

Reason for their concern is apparent. Ordinary capital of Interhandel is 50 million Swiss francs—more than 80% of which is represented by shares of General Aniline & Film Corp. Therefore, the whole financial future of the company virtually hangs upon whether or not the U.S. decides to return its confiscated GAF property.

Wide Gulf Between: Not content to sue for return of original assets alone, more vehement Interhandel stockholders even want to sue the U.S. for "losses incurred" during U.S. confiscation—a period, they maintain, that "wasted the company's money and fattened American politicians."

Taking a much more conciliatory position is Walter Germann, Interhandel president.

That he would compromise, however, is perhaps his more serious sin of "mismanagement," according to stockholders.

Classic Complaint

There's nothing wrong—fundamentally—with the Food & Drug Administration that money won't cure. That's the unanimous opinion of a 14-member citizens' committee that surveyed the agency's operations for Welfare Secretary Hobby.

The group, in addition, came up with 110 specific recommendations last week for improving the agency's activities—concerning such widely varying subjects as certified antibiotics, new drug applications, chemical additives and coal-tar dyes.

Headed by G. Cullen Thomas, senior vice-president of General Mills, and including such members as Frank Abrams, former Jersey Standard Oil board chairman, Robert Hardt, Hoffmann-La Roche vice-president, and Walter Silbersack, American Home Products Co. president, the committee particularly emphasized need for a three-to-four-fold increase in agency manpower, to meet "its essential responsibility of protecting the public health."

On the subject of funds the committee was equally adamant, suggested a 10-20% boost in the $5,484,000 Food & Drug is allocated to spend this year.

In addition to advocating increased appropriations, the committee also stressed the need for more education and information activities by the agency. Reasoning: If it lets industry and the public know better the objectives of food and drug laws, it can get a larger degree of voluntary compliance.

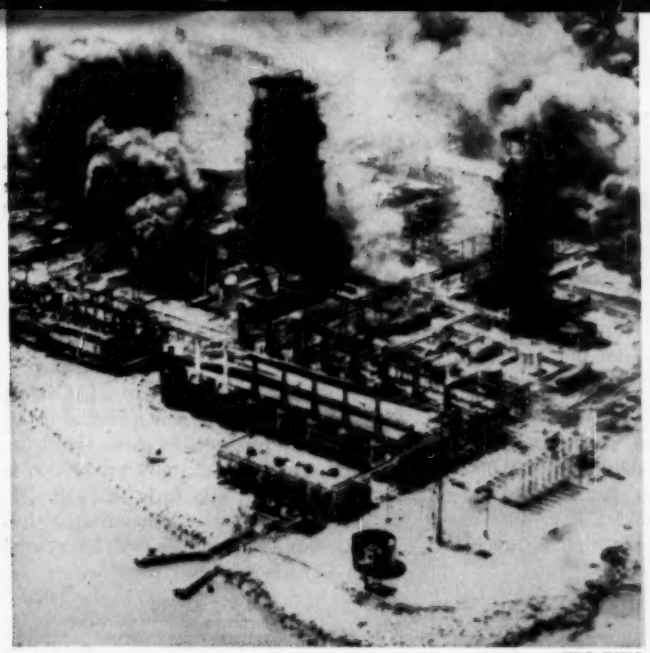
Industry groups, too, should be encouraged to foster informal standards of purity, sanitation and labeling by FDA, should be "provided with all possible assurances from other branches of government"—Congress—that such efforts will not "bring them hazards" under antitrust and other legal statutes.

On specific aspects of FDA work, the group made these findings:

- FDA should remove the certification requirement for antibiotics that have reached satisfactory standards. It should set official criteria, which, when attained by an antibiotic dosage form, would assure decertification.
- The agency's research program (into possible harmful effects from certified coal-tar dyes) should be reviewed by an industry-university technical group "to determine whether the work being done is in the interest of the consuming public."
- There is much criticism of the agency's handling of "new drug" applications, but most of these are on time delays—especially since the agency can delay applications by almost two months by saying that an application incomplete in small details is not legally "filed." Such applications should receive early screening to allow submission of such details.
- Greater care should be taken in permitting release of prescription-only drugs for over-the-counter use.
- FDA should concentrate inspection of food additive producers and users on those segments of industry that "have not established an unwavering policy of integrity."
- Much of the basic research that the agency needs to do in working out analyses for chemical food ingredients, cosmetic materials, and the like, should be done not by agency personnel, but through research grants to universities and similar institutions.

It's a good bet that many of the committee's 110 specific recommendations will be put into operation soon—perhaps by September—since many could be effected without an increased appropriation. Others may be partly adopted; but most—including mainly those that would substantially increase consumer protection—will have to wait for Congressional action, granting additional funds.

THOMAS: His basic complaint: too little for too much.



WIDE WORLD

AFTER BLAST, AFTER REBUILDING: As seen by air, Monsanto's Texas City plant in '47 (left) and in '55—now a symbol of . . .

Wider Responsibility, Costlier Claims

This week, the outlook is that Congress—after having rejected several previous bills on this subject—may, before its present session ends, pass a bill to reimburse companies and individuals for losses sustained in the ammonium nitrate explosion and fire at Texas City, Tex., in April '47.

If the bill is passed, it will be a warning to chemical companies that for all who manufacture or transport any explosive or combustible substance, the trend is toward tighter accountability for any misbehavior on the part of that material. And the claims that are expected to be filed at the federal district court at Houston if the bill goes through will set a pattern for damage awards to be made in such cases.

Two years ago, the U.S. Supreme Court decided *(CW, June 20, '53, p. 22)* that the U.S. government was not legally liable for the blast that caused 570 deaths and virtually destroyed the Monsanto plant that was only a block away from the initial explosion aboard the French freighter S. S. *Grandcamp*. Since then, Texas congressmen have been seeking to have Congress voluntarily accept responsibility for the disaster; this time, their efforts appear to be on the verge of success.

Insurance Claims Omitted: Last fortnight, the bill cleared the Senate, whose members seemed to agree with the reasoning of the late Justice Robert Jackson.

In writing the minority opinion, he averred that if the fertilizer had been moving in private commerce, the companies concerned would have been ordered to pay the claims.

The bill—now before a House Judiciary subcommittee—states that Congress should recognize and assume "the equitable and compassionate responsibility" for damages. It provides that the court will appoint masters to determine the amounts to be awarded on each claim, limits attorneys' fees to 10% of amount awarded; and authorizes no compensation to insurance companies for what they have paid out to policyholders.

One point that kept such bills from winning Congressional approval in the past: rights of insurance companies to submit claims.

Although claimants were asking a total of more than $200 million, Congressional sources estimate that on the basis of the Senate bill, not more than $20 million would be paid out. Monsanto and other companies would benefit by getting compensation for damages not covered by insurance; and the bill would be a boon to many individuals who have collected little or no insurance money.

And every dollar that's paid out will add to the precedent for all future explosion and fire cases, whether they occur in public or private business.

Tally and Tension in Drug Tilt

Mark up one tally for Bristol Laboratories in the tetracycline dispute with Charles Pfizer & Co.: Last week, Bristol researchers Alexander Gourevitch and Joseph Lein were issued patent No. 2,712,517 on their direct-fermentation process of making the broad-spectrum antibiotic.

But the situation continues tense, with Pfizer insisting that its Conover patent—issued just six months ago—covers the product itself, as well as its manufacture and marketing. Accordingly, Pfizer says, it will keep right on prosecuting its infringement suit against Bristol and the two other companies that are selling Bristol-made tetracycline—Upjohn and the E. R. Squibb division of Olin Mathieson. Bristol, Upjohn and Squibb also have separate suits pending in which they ask that the Pfizer patent be declared invalid.

Bristol President Frederick Schwartz describes his firm's newly patented process as "greatly increasing the yield over other known fermentation processes"; and this state-

ment leads some observers to predict that the dispute eventually might be settled through a series of cross-licensing agreements. But up to now, both Pfizer and Bristol are inclined to dash cold water on that prediction.

Next development in the litigation will come when the Fifth Circuit Court of Appeals in New Orleans rules on Pfizer's bid for reversal of an Atlanta district court's ruling that the infringement case be tried in New York. Pfizer says it prefers Atlanta because of chances of speedier action there.

COMPANIES. . . .

Mid-South Chemical Corp. of Delaware has registered with the secretary of state in Madison to do business in Wisconsin.

•

De Vere Chemical Co., Inc., has been formed in Janesville, Wis., with authorized capital stock of 1,000 shares of common and 250 shares of preferred, no par value.

•

Pittsburgh Coke & Chemical Co. has called a special meeting of stockholders, September 2, for the purpose of increasing the company's common stock from 1.2 million to 2.4 million shares. Also up for consideration: increase of authorized serial preferred stock from 117,310 to 240,000 shares.

•

Monsanto Chemical Co. stockholders have voted to increase their company's authorized common stock from 6 million shares (at $5 par value) to 25 million shares ($2 par value), and authorized a three-for-one split of outstanding shares. Also passed: a resolution increasing, by 300,000 of such new shares, the total number of shares authorized for stock option grants to employees during the next five years.

•

Warner-Lambert Pharmaceutical Co. will build new headquarters offices at Morris Plains, N J. Construction starts in September, and the facilities are expected to be ready for occupancy by spring, 1956. Cost: $2 million.

•

Sharples Chemicals Inc. was dissolved as a corporation July 1; it becomes an operating division of the Pennsylvania Salt Manufacturing Co. (Philadelphia).

EXPANSION

Cement: British Columbia Cement Co. will undertake a two-year, $4-million expansion of its Bamberton (Vancouver Island) plant, increasing capacity to 3.2 million bbls./year.

Work is expected to start within two months on the $1-million initial stage of expansion activities.

•

Sulfur: Pan American Sulphur Co. expects to ship about 150,000 tons of sulfur from its Mexican operations in the second half of 1955, bringing the full year's total up over 170,000 tons.

Paper: National Gypsum Co. will build a multimillion-dollar plant at Anniston, Ala., to produce a special type of paper used by the company's gypsum plants. Groundwood, used in the manufacturing process, will be imported from Canada and Europe. Capacity: 200 tons/day.

•

Finishes: Du Pont Co. of Canada plans to build a new plant at Ajax, Ont., to produce finishes. Construction starts immediately; production is expected to begin early in 1956.

Necessary raw materials—resins, solvents and pigments—will be secured in Canada wherever possible.

Between Covers: 3 M's Story

DUE FOR DISTRIBUTION throughout the U.S. in coming weeks will be the first published 50-year history of Minnesota Mining & Mfg. Co. (St. Paul, Minn.). Titled "Brand of the Tartan," the book was written by Twin Cities free-lance writer Virginia Huck.

To get distribution rolling, 3M itself plans to purchase 25,000 copies of the 260-page "biography of free enterprise" for free distribution to stockholders, customers and employees. Seen here perusing an advanced copy: Board Chairman W. L. McKnight (*left*) and Executive Committee Chairman A. G. Bush.

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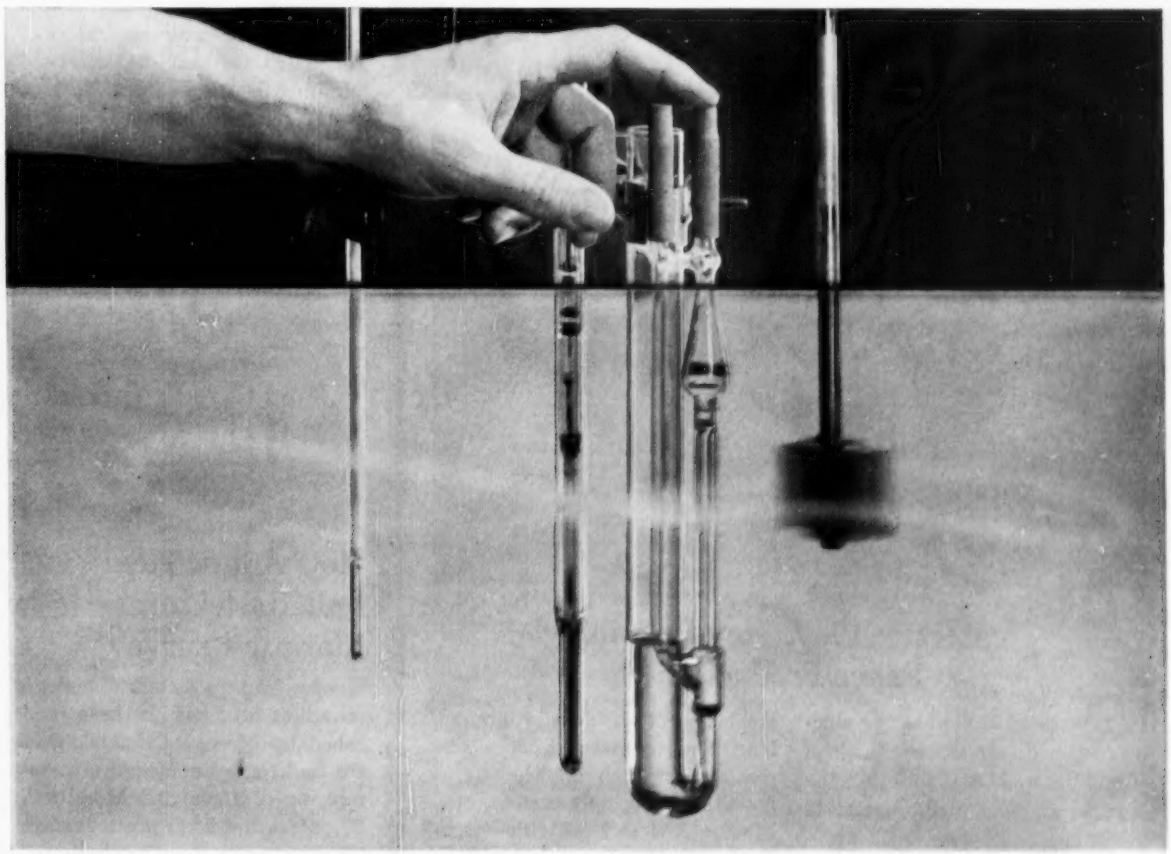

Measuring viscosity of solutions of Methocel in the Ubbeholde Viscosimeter.

Uniformity is important in the material you choose for the vital job of viscosity control. To assure complete uniformity of Methocel® (Dow methylcellulose), production runs of this superior cellulose gum must pass a standard viscosity measurement. Solutions of Methocel are subjected to a very exacting measurement by timing the rate of flow through a capillary type of tube in the Ubbeholde Viscosimeter.

Range of viscosity is important, too. Methocel is available in nine different viscosity types, covering a broad range from 10 cps to 7,000 cps, as measured in 2% aqueous solutions at 20°C. By varying this concentration, an even greater range of viscosities can be obtained.

Viscosity control with Methocel has simplified processing and improved many products. Colorless, odorless, inert and remarkably stable solutions of this gum are also widely used as a stabilizer, thickener, suspending agent, binder and film former. For a free sample or assistance on your specific problem, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. ME 826B-1.

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brief summaries of helpful product news

Mersize Plays Key Role in Paper Production

In 1954 American paper production stood at the all-time high of 26 million tons. And for every ton of paper manufactured, almost 500 lbs. of chemicals were used in preparing the pulp and making the paper.

The paper industry, now a towering $8 billion giant, has always been alert to take advantage of promising chemical products where those products could smooth out a production problem, better paper's physical characteristics or quality.

Monsanto Mersize* RM Dry, for example, is one of the many new developments which the industry has adopted.

Replacing old-fashioned rosin size, long used to make paper water-resistant for such applications as hot-drink cups, milk cartons, etc., Mersize RM Dry offers these specific production advantages: Substantial reduction in amount of size required, resulting in dollar savings up to 20%; low foaming index which assures maximum ease and speed of operation; low dusting and non-irritating qualities which simplify handling of the material.

Would you like to know more about Mersize RM Dry—how and where it is serving the paper industry?

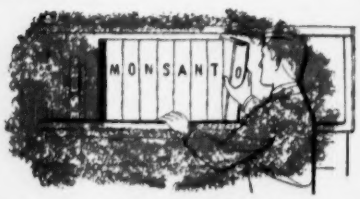
Just check the coupon and we'll see that you receive this information immediately.

Actamer soap antiseptic helps reduce employe absenteeism

By keeping your washrooms stocked with soap containing Actamer,* Monsanto's soap bacteriostat, you can help keep employes on the job by reducing the infections which often follow skin injuries.

Control of skin bacteria is important because 60% of all occupational disease compensation cases are based on skin disorders and resulting infections. Regular use of soap containing Actamer reduces bacteria up to 97%, thus cutting the chances of skin infections.

Industrial soaps with Actamer are available in bar, liquid or powder forms. For a list of suppliers, check the coupon at right and mail it to Monsanto today.



New Adipic Acid bulletin features literature survey

A new 36-page technical bulletin on adipic acid has just been published by Monsanto. Highlight of the bulletin is the extensive literature survey it contains. More than 80 patent and literature references describing numerous products are summarized. Other sections discuss the properties, toxicity and general chemistry of this versatile compound.

The bulletin was written primarily for research chemists and manufacturers interested in using adipic acid to make a variety of coating, molding and spinning resins and

Plasticizers	Paper finishes
Surfactants	Insect repellents
Adhesives	Textile chemicals
Waxes	Lubricants, etc.

Resins made with adipic acid have an inherent flexibility which bypasses the need to plasticize harder resins. One advantage is increased durability of finished products. Adipic acid has long been used to make nylon.

Other interesting applications are elastomers and isocyanate-foamed polyesters from adipic acid. These possess amazing durability and are used as rubber substitutes, insulating, soundproofing, upholstery, cleaning and other materials.

Send the handy coupon for your copy of Tech. Bulletin O-105.

Versatility of Dibutyl Fumarate described in new technical bulletin

A new technical bulletin is now available on versatile dibutyl fumarate. A reactive resin and chemical intermediate, dibutyl fumarate forms copolymers with various monomers under adjusted reaction conditions to produce polymers ranging from brittle resins to soft, internally plasticized materials.

Copolymers of dibutyl fumarate with vinyl acetate, vinyl chloride, acrylates and styrene are used in formulating surface coatings, free films, permanently tacky adhesives, fibers, synthetic lubricants and addition agents for oils. And as a chemical intermediate, it yields substituted succinates readily with the addition of halogens, aldehydes, thiols and similar compounds.

For your copy of the new bulletin, just check the coupon at right and mail it to Monsanto today.

New film, "Before Hydraulic Fires Start," available for showing

A new 12-minute motion picture, "Before Hydraulic Fires Start," demonstrates how Monsanto's Pydraul* F-9 fire-resistant hydraulic fluid protects your plant and employes from costly hydraulic line fires.

Filmed in die-casting and steel plants using hydraulic power near a source of intense heat, the movie stresses how Pydraul F-9 makes possible the increased use of hydraulics where the danger of fire exists.

You will see tests proving that Pydraul F-9 outperforms other hydraulic fluids for lubricity, compressibility, pour point . . . how it prevents costly corrosion, oxidation . . . how its solvent action prevents build-up of sludge and impurities.

In addition to showing how easy it is to change over to Pydraul, the movie also illustrates, step by step, how easily and economically Pydraul F-9 can be reclaimed and re-used to sharply reduce new fluid requirements.

Prints of the 12-minute 16-mm, black-and-white sound movie are available from Monsanto.

Salicylic Acid Crystals now easier to handle

Monsanto's new and improved Sublimed Salicylic Acid Crystals feature shorter, broken needle structure and are offered in easy-to-handle standard containers. The improved material flows freely, eliminates "packing."

Want more information? Note your request below.

DIDP-E offers big wire coatings benefits

For maximum retention of elongation, tensile strength and modulus properties in wire coatings, specify Monsanto plasticizer DIDP-E (with 0.1% Bis Phenol A antioxidant added). Tests show that the compound's electrical properties are equal or superior to DOP. 60° C. T or TW formulations are now available.

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- ☐ Adipic Acid, O-105
- ☐ Dibutyl Fumarate, ODB-54-18
- ☐ Actamer, ODB-53-12

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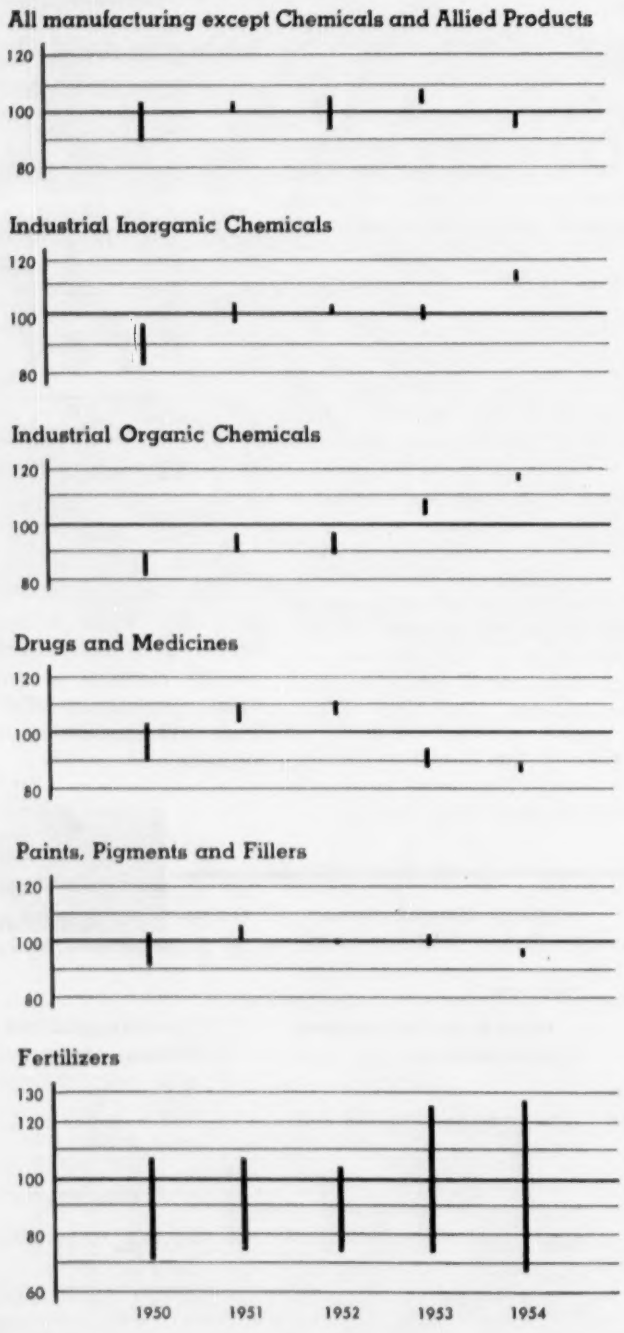
LOWDOWN ON LAYOFFS

Range in employment of production workers — minimum to maximum employment each year

Index: Mean (1950-'54) = 100

(Based on data from U. S. Bureau of Labor Statistics)



On Guaranteed

Watching the chemical process industries for "soft" employment areas in which a guaranteed annual wage attack might be pressed with some hope of success—that appears this week to be what the CIO's Oil, Chemical & Atomic Workers Union is doing.

So far, it seems that only in three industrial groups—fertilizers, cosmetics, and processing of animal and vegetable oils and fats—has the layoff problem been extensive enough to attract this union's attention.

And for chemical companies as a whole, the layoff rate over the past six years (*see table*) has been only about one-fourth or one-fifth of the rate in the auto industry, where the CIO's United Auto Workers finally won contracts providing for supplementary layoff pay—termed a modified form of GAW.

Over-all Gain Seen: OCAW—which several months ago came out for a guaranteed wage in fertilizer and cosmetic plants—has continued to stress this objective to all its members at chemical, petrochemical and oil plants.

Latest sermon on this theme: An OCAW memo to the rank-and-file about a "Wall Street broker"*—W. T. Hyde, Jr., of Josephthal & Co.—who has been advising clients that GAW's beneficial results "would far outweigh its disadvantages."

"The greatest benefit of the GAW," Hyde is quoted as saying, "would be to reduce the vulnerability of our Achilles heel to communism. Failure to provide steady employment is the single weakness the capitalistic system has so far been unable to overcome. If this can be overcome by a guaranteed annual wage plan—fairly worked out to recognize actualities such as seasonal employment rather than theoretical issues—the benefits will be shared as fully by capital as by labor."

Chemical Employment Steady: In most chemical plants, variation in labor force is far less than in the great majority of other manufacturing industries (*see charts, left*).

Last year, for example, employment of production and maintenance workers in other manufacturing enterprises dropped by more than 6% from the year's high point in January to the

* Actual address: 120 Broadway.

Wage: Probing for Soft Spots

lowest 1954 level in July; but in both organic and inorganic industrial chemicals, the drop was only 3%. The spread in drugs and medicines was not quite 3%, in paints and related products a little more than 1%.

In fertilizers, however, the range was some 70%, from an early spring high of 38,400 to an autumn low of 21,900; and in processing of oils and fats, the late summer low of 25,300 gave way to a seasonal high of 32,700 after the cotton, flax and soy bean crops were in.

Holding Fast in '55: Outside of these classifications, chemical employment is among the steadiest of careers open to skilled and semiskilled workers. Further substantiation of this thesis comes from BLS' month-by-month "labor turnover" figures.

Since the recession year of 1949, the highest number of layoffs in the chemical process industries was the 1.2% in April '52. The so-called "Eisenhower recession" brought no more than 1.1% of layoffs in Nov. '53 and Jan. '54; and by last December, the number of chemical workers in layoff status was down to less than one-half of 1%.

Approximately that same average has prevailed in chemical plants all through the first five months of this year. By contrast, layoff averages in at least four other principal industries—food, apparel, autos and other transportation equipment, and ordnance—have been three or four times higher. Rates for May: chemical industries 0.4, transportation equipment 2.4.

Challenge Remains: Present consensus is that only the largest industrial concerns can finance any kind of GAW program; but that all employers should (a) try to stabilize employment as much as possible, and (b) convince employees that management is really trying to minimize job fluctuations. Even the industry that now has a modified GAW plan wants its employees to know that the job stabilization drive is still being stressed. One auto firm is reciting to its employees the efforts being made along this line—more advance planning and scheduling, pushing sales campaigns during off-season months, greater use of overtime work to reduce hiring of temporary employees, and asking employees to take their vacations in slack seasons—and is explaining to its employees how employment stability means greater profits for the company, steadier pay for the workers.

For several years, chemical management—conscious of the CIO's push for GAW—has been taking steps to forestall demands for such benefits (*CW, Jan. 30, '54, p. 24*). That much has been accomplished in most sectors of the industry can be seen from the records.

But whether anything can be done to level out employment in fertilizer, fat and oil processing, and cosmetic plants—which have accounted for a large share of all layoffs in the "chemicals and allied products" category—stands as a challenge to management and a bargaining point for the unions.

WHERE WORK IS STEADIEST

(Layoff rates for past six years, as average number of persons laid off for every 100 production and maintenance employees)

Year	Chemicals & Allied Products	Automobiles	All Manufacturing
1949	1.6	3.4	2.4
1950	0.4	1.7	1.1
1951	0.5	2.6	1.2
1952	0.6	2.2	1.1
1953	0.6	2.8	1.3
1954	0.7	3.6	1.9

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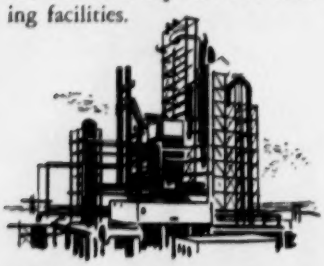
PLASTICIZERS

HARCHEM DIVISION
WALLACE & TIERNAN INC.
25 MAIN ST., BELLEVILLE 9, N. J.

Problem

To produce more ammonia without excessive expansion of existing facilities.



Solution

GIRDLER helped solve this problem by developing two highly active catalysts, G-19 and G-3. Without sacrificing quality or enlarging the gas plant, the use of these two GIRDLER Catalysts on synthesis gas production resulted in:

75% more output

Girdler specializes in solving catalyst problems. Its knowhow is at *your* service.

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Catalysts

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Gas Processes Division
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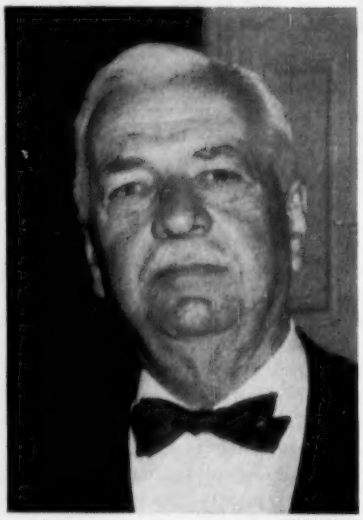


WIDE WORLD

TOWNSEND: Closely watching developments in Basle.

FOREIGN. . . . . .

Interhandel/Switzerland: Of top interest to government executives, charged with the problem of what to do with Interhandel's subsidiary—General Aniline & Film Corp.—was last week's annual stockholder meeting of the big Swiss concern, held in Zurich. The majority of Interhandel's stockholders have openly criticized President Germann's tactics in "lobbying in favor of the Dirksen and Dirksen-Kilgore bills (dealing with German assets) in the U.S.

Interhandel, they assert, can only lose by being batched with "German assets."

Further, they are complaining that Interhandel management gives practically no information as to its investments, and that the existence of privileged shares (with special voting rights) makes it impossible for common stock holders, who furnish the capital, to control management expenditures.

Carefully watching proceedings: the Alien Property Custodian, from whom will come the recommendation of what to do about GAF—Interhandel's prized U.S. holding.

Public reaction in Switzerland could strongly influence his views.

•

Brickbats/Russia: Russia's chemical industry came under fire again last week—charged this time with failure to provide new insulating materials for electrical equipment manufacturers.

The director of Leningrad's giant Electrosila plant (N. Shevchenko) claims, in the official government newspaper *Izvestia*, that "chemists have been far too long in developing organic silicon lacquers and resins, thermoreacting, -impregnating and -sealing compounds, and other synthetic coatings."

•

Rumanian Expansion: The Rumanian chemical industry has achieved a 225% boost in volume from the beginning year of the current five-year plan (1951) to date. Output of phosphate fertilizer has increased 584.4%, and an "appreciable" increase in nitrogenous fertilizer has also been realized. Backbone of all chemical production, however, is still the jointly operated SovRum-Chemie enterprise —Carbochim.

•

Paraffin/Germany: The German refining company, Deutsche Erdoel A.G. (in Heide) has just put an installation for deparaffining spindle oil by using urea in the operation. Capacity: 50 tons/day of spindle oil.

The process (developed by Edelenu Gesellschaft m.b.H. (Frankfurt) extracts paraffin through use of urea in aqueous solution. Crystalline paraffin-urea is formed in a highly saturated solution; methylene chloride serves as the solvent, is used for direct cooling of the crystalline process.

•

Vinyl Acetate/Great Britain: A vinyl acetate monomer plant is being built by British Celanese Ltd. at its Spondon works. Designed to operate a process using acetaldehyde and acetic anhydride (produced in large quantity as secondary by-products at the company's oil cracking installations), it's expected that British Celanese will have vinyl acetate monomer ready for sale early in 1956.

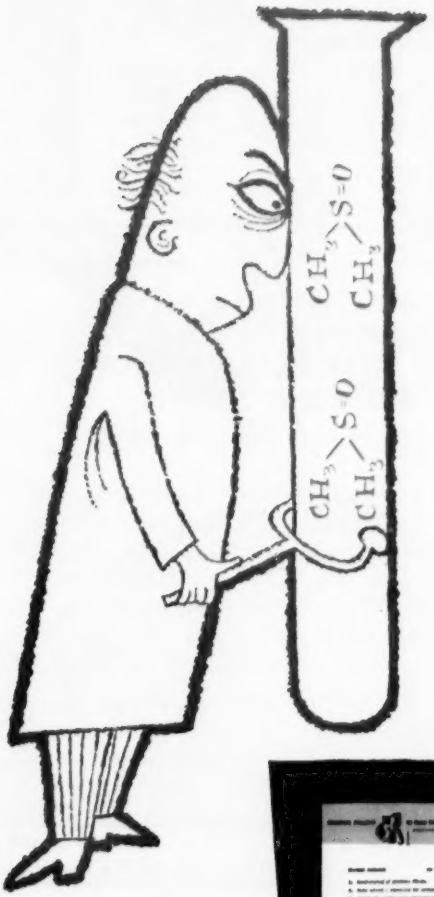
•

Pakistan-German Accord: Pakistan's Industrial Development Corp. and two West German chemical makers (Farbenfabriken Bayer and Farbwerke Hoechst) have signed an agreement to set up a $1.2-million dyestuffs plant at Karachi, Pakistan. Two products slated for immediate production congo red, and sulfur black.

Thirty percent of the necessary capital will be subscribed by the German firms; construction starts in September.

Dimethyl Sulfoxide

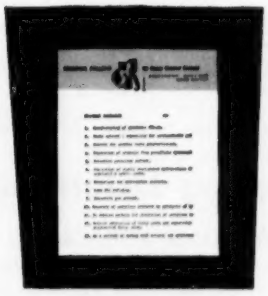
A most unusual NEW Solvent...



Dimethyl Sulfoxide is a clear water-white, very hygroscopic and completely water soluble liquid. It is believed to be non-toxic and has little odor and is only slightly bitter to the taste. It has a high boiling point, high flash point and low freezing point when mixed with water.

Among its many potential uses are:

- **Desulfurization and separation of petroleum fractions by selective solvent action.**
- **Solvent for acetylene and other gases.**
- **As a solvent for use in the spinning of synthetic fibers.**
- **Solvent for certain plastics.**
- **Paint removal.**
- **Insecticide (Fly) synergist.**



Write for Information

Additional information on Stepan Dimethyl Sulfoxide may be obtained by writing for DMSO TECHNICAL BULLETIN

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'Spoon Feeding' Over?

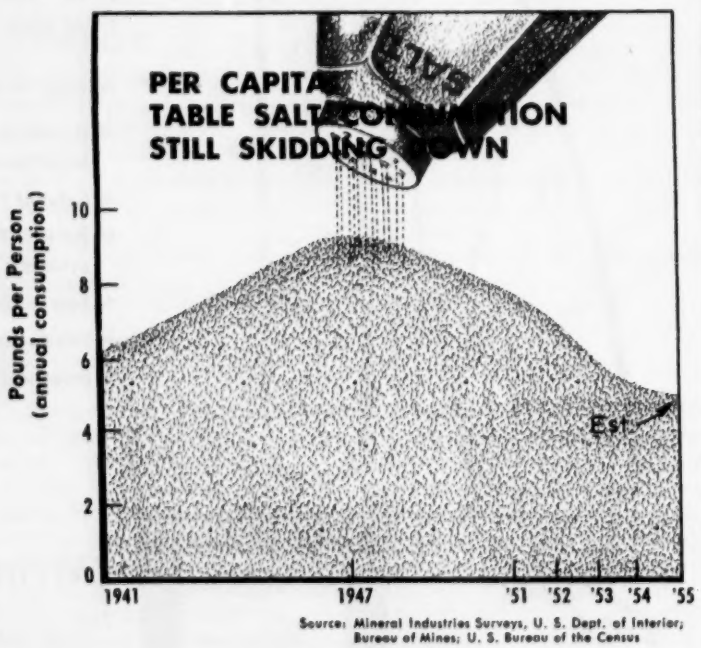
Almost as hot as the weather in Washington last week was the fight being waged over continuance of the fast tax write-off program—a Korean War defense measure that has served purposes other than strictly defense.

Bucking for an end to the program is Treasury Secretary Humphrey, who is represented as feeling that the day is long-since past when the government has to lure expansion by such costly (in revenue loss) means. Special incentives, through tax write-offs, have cost the government $3 billion in revenue over the past three years—including $1 billion in the fiscal year ending June 30.

Opportune Moment: Humphrey's demand to end tax write-offs now comes at an ideal moment—as far as gaining Administration support is concerned. The dent it is causing in the Treasury's revenue (at a time when it's politically important to maintain a balanced budget) is almost as strong a talking point as the claim that, in the absence of an emergency, the fact that the U.S. is sponsoring a big mobilization program threatens harmonious foreign relations.

Lending strength to the belief that tax write-offs top Administration concern is recall of F. L. Parnall, chief of the Office of Defense Mobilization's finance division, from vacation to study the matter.

IMPACT



Source: Mineral Industries Surveys, U. S. Dept. of Interior; Bureau of Mines; U. S. Bureau of the Census

Perplexing Dilemma

TWO CONFLICTING FORCES are at play in today's granulated salt production picture: (1) production is building steadily (over 3.8 millions tons of salt were sold in 1955), but (2) carton sales/capita are falling off. Reason: the impact of frozen foods, premixes and salt-free diets To make up this loss in profits, saltmakers are buckling down to selling more 100-lb bags of salt to large-scale food producers (they now use 29% of total tonnage).

Present aim: to span the gap between profits on a typical $360 carload* of 100-lb. bags of salt and profits on a $2,250 carload* of consumer cartons.

* 22½-ton carload (f.o.b. one Eastern company's plant).

CSC DIBUTYL PHTHALATE

No. 1 PLASTICIZER

FOR POLYVINYL ACETATE EMULSIONS

Long recognized as the standard plasticizer for nitrocellulose lacquers, dopes and plastics, CSC's dibutyl phthalate now has achieved recognition as the outstanding plasticizer for polyvinyl acetate emulsion paints. Although a comparative newcomer to the industry, the growth of these paints has been remarkable and by all accounts even greater progress can be expected. More and more paint manufacturers are investigating its possibilities.

Whenever polyvinyl acetate emulsion is chosen, and whether the emulsion is pre-plasticized or post-plasticized, it is well to investigate the low cost advantages of CSC's dibutyl phthalate. Tests prove that it adds the necessary degree of flexibility to the film, promotes adhesion, permits more satisfactory pH stabilization — and most important has less tendency to migrate.

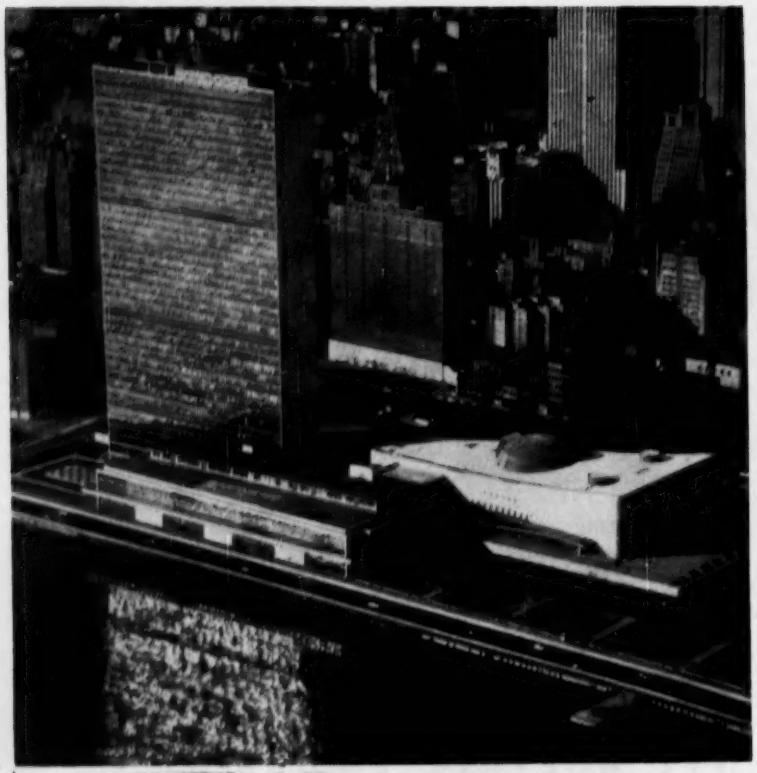
CSC's dibutyl phthalate is also an excellent plasticizer for other polyvinyl acetate applications. In adhesives, a growing field, it increases both flexibility and tackiness. In paper coatings, it increases "grab". For more information or a sample, write Industrial Chemical Dept., CSC, 260 Madison Avenue, New York 16, N. Y.

PHYSICAL PROPERTIES

Molecular Weight	278.34
Boiling Point at 760 mm	340°C
Vapor Pressure: 198.2°C	10 mm
287.0°C	200 mm
313.5°C	400 mm
Freezing Point	−35°C
Density at 25°C	1.0426 g/ml
Weight per U.S. Gallon at 68°F	8.72 lb
Coefficient of Expansion, °F	0.00048
°C	0.00086
Refractive Index, n_D at 25°C	1.4914
Viscosity at 25°C	15.8 cp
Heat of Vaporization at bp	18.93 kcal/mole
Specific Heat at ordinary temperatures	0.43 cal/g (approx.)
Electrical Conductivity at 30°C	4.2×10^{-8} mho/cm
Dielectric Constant at 30°C	6.436
Flash Point, Cleveland Open Cup	340°F
Solubility in Water at 20°C, by weight	0.01%
Solubility of Water in Dibutyl Phthalate at 20°C, by weight	0.46%

COMMERCIAL SOLVENTS CORPORATION
260 MADISON AVENUE NEW YORK 16, N. Y.

CSC INDUSTRIAL CHEMICALS



NEW YORK LANDMARK: For chemical men, a font of information.

Eyes Everywhere

Especially in sizzling summer months—when tempers and temperatures are close to the boiling point—management is prone to welcome any means by which it can more easily handle its daily business chores.

One of its handiest and most available sources of information is often overlooked, however. Widely known for its more spectacular activities, the United Nations today maintains one of the steadiest flows of valuable data, reports and surveys in the entire world.

Because of its far-flung interests in developing economically backward areas, the UN is constantly undertaking study of subjects close to the U.S. chemical industry. Needless to say, the end product of such studies is pure manna from heaven to companies dealing abroad, or contemplating overseas trade.

Regional Commissions: Take, for example, what one of the regional economic commissions of the UN is doing this week. ECLA—the Economic Commission for Latin America—is currently undertaking an exhaustive review of heavy chemical industry in all South American countries. When complete, the survey will stand apart as the most thorough economic analysis of chemical resources, production and needs ever made in that sector of the world. More important: the final summing up is bound to unveil information valuable to U.S. chemical men mulling the thought of doing business in Latin America.

Besides tackling major surveys of this kind, all regional economic commissions (there's one each for Europe, Latin America and the Far East) turn out useful quarterly economic bulletins.

They're available for 50¢ from the UN's Sales and Circulation Section (New York).

Also, major studies are frequently subsidized by the UN in liaison with more than one of its agencies or commissions. That's the case in the "Report on the Pulp and Paper Industry in Latin America." To compile that review, ECLA pitched in with TAA (Technical Assistance Administration) and FAO (Food and Agriculture Organization) – two UN specialized agencies.

Both TAA and FAO themselves are veritable storehouses of facts in specialized fields touching the chemical industry. TAA, among many charges, is actively working out designs, construction and operation of, and equipment purchases for, penicillin and DDT plants in some seven underdeveloped countries. What's more, some U.S. pharmaceutical makers have already approached TAA for help on overseas contacts. So long as it doesn't involve overstepping into world diplomacy, UN agency people are always willing to supply assistance of this kind.

FAO is a handy source of knowledge, too. Its "Annual Review of World Production and Consumption of Fertilizers" is finding ever wider usage. Its special forte: supplying world statistics on pulp and paper, wood, textiles and fibers, in addition to volumes of data on agriculture and food.

Statistical Yearbooks: Not to be overlooked by chemical manufacturers as prime intelligence sources at the UN are the Statistical Yearbooks. Industrial relations men have a particular document to watch—a labor yearbook that comes from ILO (International Labor Office).

Attracting even wider chemical audiences: the Commodity Trade Statistics Yearbook compiled by the UN's Statistical Office, Dept. of Economic Affairs. Among seven trade categories, it lists chemical imports and exports to and/or from some 35 countries. Breakdowns are given, in most cases, in quantity units (metric tons) as well as in value units (dollars). Twelve main chemical categories are reported, including organic, inorganic, coal-tar dye, paint, soap and cosmetic classifications.

Broadened Base: UN technical experts, commissions, agencies and offices are focusing their eyes more keenly these days on national economies. Their hope (by defining clearly what any country has and has not): to raise industrial, agricultural and health levels.

Data gathered for such economic profiles can and will be of interest to industry men everywhere.

Party Gets Bigger

Federal Trade Commissioner Edward F. Howrey put a real charge behind enforcement of antitrust legislation last week—adding one more industry to the long chain of those alleged to have "conspired to restrain trade." Charging the Paint Dealers Institute of New York and six affiliated associations with an alleged attempt to "force paint manufacturers to sell only to recognized dealers in paint, wallpaper, and allied products," Howrey claims the group has conspired since March '52.

At that time, the FTC claim goes on, the institute was reactivated to present a "united front" of paint dealers in the New York-New Jersey area "against paint manufacturers who sell to retailers not recognized by the respondents as paint dealers."

The drive to cut out unrecognized dealers went so far, Howrey insists, that boycotts were urged against manufacturers who serviced them.

Among the respondents named in the FTC charge: Retail Paint and Wallpaper Distributors of America (St. Louis); Paint Dealers Assn. (New York); Paint Distributors Assn. (Long Island); Westchester Dealers Assn. (White Plains); Hudson-Bergen County Paint Dealers Assn. (Hoboken); North Jersey Paint and Wallpaper Dealers Assn. (Newark); and numerous individual members of the institute.

WIDE WORLD

HOWREY: Gives Fourth of July surprise to paintmakers.

Firmly established ..but still growing

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See this site at Marley Neck, Baltimore. 3000 acres under one ownership —the Atlantic Seaboard's largest deepwater site.
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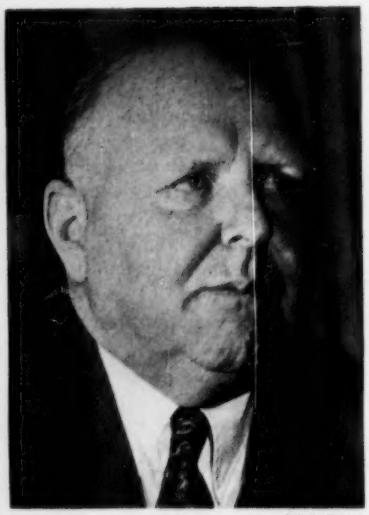


WIDE WORLD

TEAMSTERS' BECK: When his men stop working, everybody stops.

LABOR. . . . . .

Truck Drivers' Strike: Further illustration of the power of Dave Beck's AFL Teamsters came last fortnight in the strike by 11 truck drivers that slammed the brakes for three days on construction of the $25-million plant of the Escambia Bay Chemical Co. at Milton, Fla. The teamsters—employed by the contractor, Chemical Construction Co.—reportedly objected to unloading boxcars, and some 300 other construction workers honored their picket lines.

•

Other Picketing: Strikes also were in the chemical industry news in Ohio and Texas last week:

- At Barberton, O., some 1,500 members of the nonaffiliated Allied Chemical & Alkali Workers were striking in an attempt to get Columbia-Southern Chemical to increase its offer of a 9¢ wage rise and an additional 3¢/hour in fringe benefits.
- About 280 members of the Oil, Chemical & Atomic Workers (CIO) at Goodrich-Gulf Chemicals' plant in Port Neches, Tex., have authorized a strike "if necessary" as company and union negotiators failed to reach agreement on a new sickness-accident insurance plan.
- A one-week strike at the Tin Processing Corp. smelter in Texas City, Tex., ended without settlement of the wage dispute; but the company refused to resume operations until there was a definite agreement.

Look, Don't Leap

You may not like what your employees' union has been doing lately; but the prudent course—judging by this week's crop of labor law decisions—is to say nothing and do nothing until you've checked the latest rulings of your state supreme court.

Those tribunals have been particularly active in the industrial relations field in recent weeks; and each decision pins down laws that may now or later determine what goes on between you and your plant force.

Latest of these state supreme court opinions in labor cases:

- Arkansas—Picketing must be confined to the jobs or work areas actually involved in a dispute. Picketing by AFL electricians that interfered with work being done by truck drivers, carpenters and other tradesmen was declared illegal.
- Connecticut—Employees made idle as a result of a strike by fellow workers in other departments of the same plant are not eligible to receive state unemployment benefits.
- Idaho—Even though employment of minors is prohibited by the state child labor law, a minor who is injured while working is covered by the state workmen's compensation act.
- Nebraska—"Union shops" may be permissible under federal law, but they're illegal under a "right-to-work" amendment to the state constitution; and the latter document takes precedence. (The labor unions concerned say they'll appeal to the U.S. Supreme Court.)
- Wisconsin—The state must not require unions to limit their picketing to employer-employee disputes; to do so would be restricting the right of free speech. Picketing to protest against use of nonunion labor is legal.

Worry Over Water

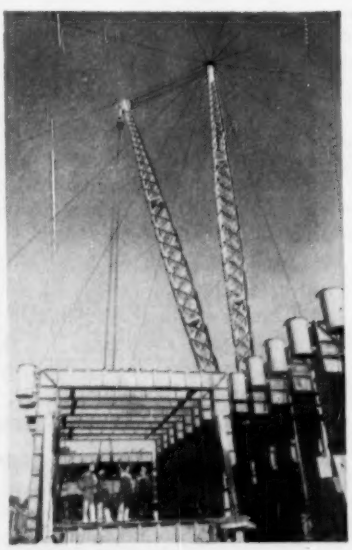
Process companies, in California—constantly concerned about the quantity and quality of their industrial water supplies—may benefit from recent developments at Sacramento.

For one thing, the legislature strengthened the hand of the State Water Pollution Control Board in cases where regional boards fail to act.

The law-makers failed to agree on any plan for establishment of a new state agency for water conservation; but Gov. Goodwin Knight says he may be able to work out a water control system through certain agencies already in existence. "We certainly can't wait until all we're pumping is salt water," he warns.

On a parallel problem, the legislators voted tax benefits for firms installing air pollution control gear.

Swan Song of an Electromagnet



END OF AN ERA is being written at Oak Ridge, Tenn., this week as the once mighty electromagnetic U-235 production equipment is dismantled for re-use elsewhere. Enormous size of the coils that helped split the uranium oxide is apparent in the picture at left.

Because copper was at a premium when Oak Ridge facilities were being built, and (thanks to the Western silver bloc) silver was readily available, coils are wound with silver ribbon—5/16x2½ in. in cross-section.

Now ready to be returned to the mint, the coils are cut away by riggers; precious ribbon is pulled off the spool to be straightened out under high-pressure rollers; the entire supply is readied for return.

Mono Laurates Di

of

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Ethylene Glycol
Diethylene Glycol
Polyethylene Glycol
Propylene Glycol
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MADE TO MEET YOUR SPECIFICATIONS

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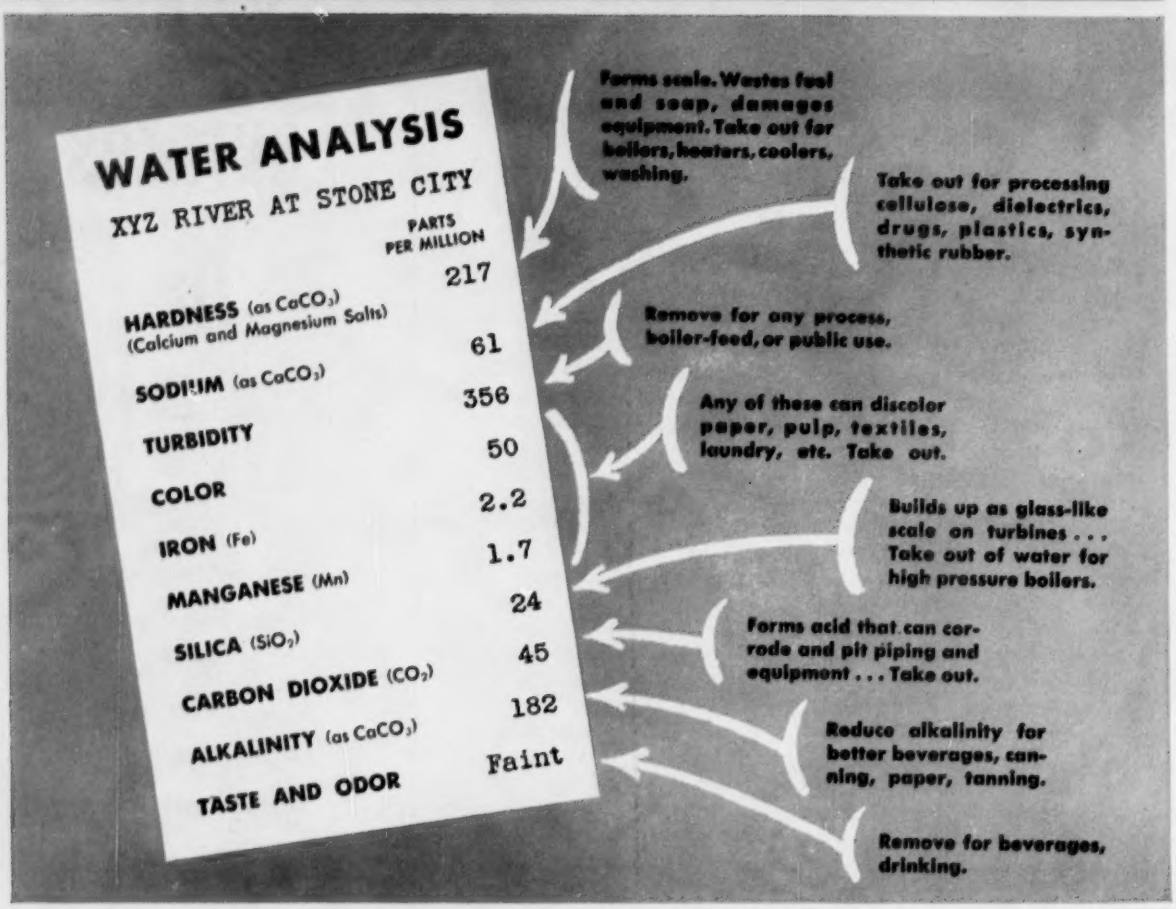
WATER:

Re-use of water where supply is short . . . and more critical requirements of new cost-cutting processes . . . put emphasis on water treatment.


WATER ANALYSIS
XYZ RIVER AT STONE CITY
PARTS PER MILLION
HARDNESS (as $CaCO_3$) (Calcium and Magnesium Salts) 217
SODIUM (as $CaCO_3$) 61
TURBIDITY 356
COLOR 50
IRON (Fe) 2.2
MANGANESE (Mn) 1.7
SILICA (SiO_2) 24
CARBON DIOXIDE (CO_2) 45
ALKALINITY (as $CaCO_3$) 182
TASTE AND ODOR Faint
Forms scale. Wastes fuel and soap, damages equipment. Take out for boilers, heaters, coolers, washing.
Take out for processing cellulose, dielectrics, drugs, plastics, synthetic rubber.
Remove for any process, boiler-feed, or public use.
Any of these can discolor paper, pulp, textiles, laundry, etc. Take out.
Builds up as glass-like scale on turbines . . . Take out of water for high pressure boilers.
Forms acid that can corrode and pit piping and equipment . . . Take out.
Reduce alkalinity for better beverages, canning, paper, tanning.
Remove for beverages, drinking.

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Million-Dollar Wager

Nopco Chemical Co. (Harrison, N.Y.) is willing to bet $1 million in expansion funds this week that urethane foam plastics are "up and coming." And the company's wager is being made in the face of a Du Pont lawsuit* charging infringement of patents.

What's more, Nopco's plans include more than merely expanding urethane foam production. Nopco will move into the vinyl foam plastics picture, with construction of two new plants —already abuilding—and just last week officially bared its purchase of Griffin Chemical Co. (San Francisco, Calif.).

Purchase of Griffin is not only calculated to add tonnage production of petroleum sulfonate, naphthenic acid, polyvinyl acetate emulsions, and phthalate/adipate plasticizers to Nopco's already diverse line of industrial products, but also will give it a ready-made expanded outlet into Western markets.

Financial terms of the deal have not yet been released, but Wall Street reports state that Nopco was so eager to cop the "Griffin prize" (openly sought by a number of other East Coast chemical makers) that it has arranged for a straight—100%—stock transfer deal.

Just a Start: For Nopco, the two new plants and Griffin acquisition are probably only initial steps in furthering its plastics business.

The company already holds licensing agreements from Mobay in addition to those from Lockheed for urethane foam production. Still lacking, however, and blocking the firm-up of expansion plans: vinyl foam production agreements. But parleys to rectify this oversight are under way right now.

"As expansion plans stand now," states company President Ralph Wechsler, "two new plants are scheduled to come onstream by October of this year." Both will produce urethane and vinyl foam plastics; one will be located near Irvington, N.J., the other in Los Angeles. A third unit is slated for construction somewhere in the Midwest early next year.

Capacities Differ: Nopco's new ventures differ considerably in size: the West Coast plant is expected to deliver about 3 million lbs./year of both urethane and vinyl foam stock; the Jersey plant will probably produce twice that volume of materials.

But that should be far from meeting potential U.S. demands. Currently, Nopco figures, there's only about 400,000 lbs. of urethane foam being produced in the U.S., and that largely for development purposes. Nopco expects foam production in the next four years to scale over the 100-million-lbs./year mark.

On this phenomenal growth prediction, the company is staking its future.

*To be resumed in September.

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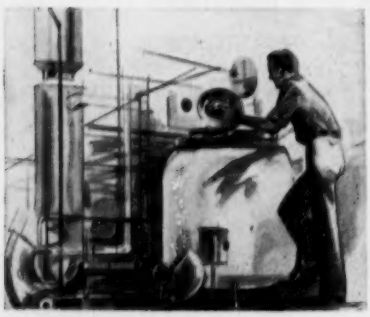

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Solubility is 19.3 grams/100 grams water. Other solvents are water-methanol mixtures, in which solubility ranges from 13.0 grams/100 grams solvent for a ratio of 4 to 1 water-methanol solution down to 0.7 grams/100 grams solvent for methanol alone. It also dissolves in other water-alcohol mixtures, and liquid ammonia. In general, solubility sharply decreases with higher alcohols. KBH_4 is generally insoluble in esters, ethers, and hydrocarbons. It has a negative heat of solution in water of 6.3 Kcal/mol.

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JUDGE LEMLEY: On much disputed clause, a finding of validity.

LEGAL. . . . . .

Creditors' Priority: In the wake of the decision against Westmoreland Manganese Corp. in the government's $2.9-million foreclosure suit (*CW Newsletter, July 9*), Federal District Judge Harry Lemley is slated to confer in Little Rock, Ark., this week with creditors who think their claims should be satisfied first. Meanwhile, attorneys for the firm are preparing to appeal to the Eighth Circuit Court.

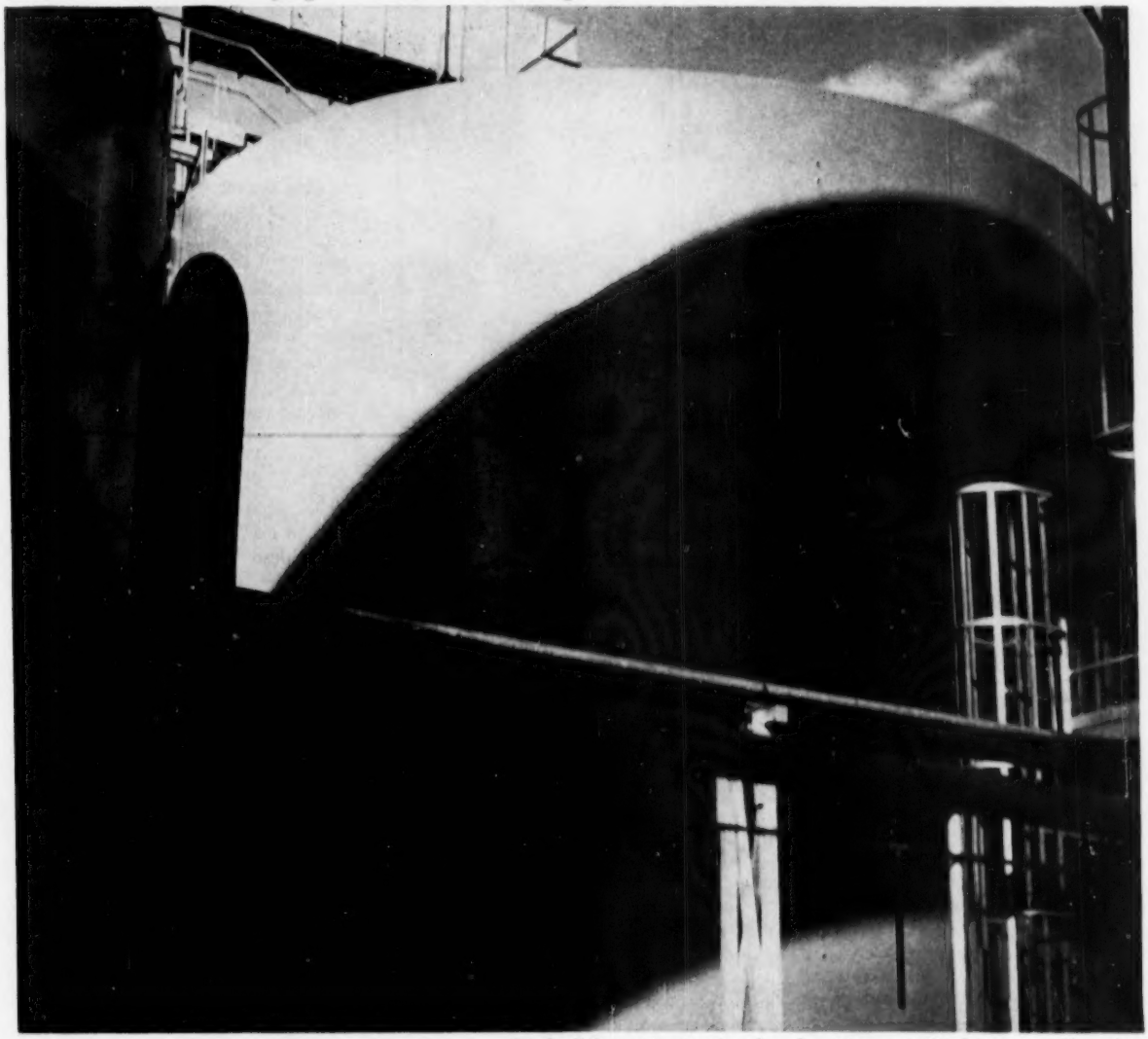
Judge Lemley's ruling turned on the validity of a clause that was added to the U.S.-Westmoreland contract just five days before the deadline for the plant to be ready to start production. Westmoreland's position is that this clause—which gave the government the right to halt the project whenever that move might appear to be in the public interest—was void.

But Lemley accepted government officials' denial of the fraud charge; and he ruled that by accepting the amendment, Westmoreland did gain "valuable considerations"—namely, another chance to fulfill commitments. The project was halted in April '53, with the plant some 80% completed.

•

Sulfur Firm Renamed: In another Southwestern lawsuit, Humble Oil & Refining has succeeded in forcing Humble Sulphur Co. to change its name. U.S. District Judge Ben Rice, Jr., at Austin, Tex., has signed an injunction to keep the sulfur firm from selling stock or conducting other

TESTS PROVE it pays to use coatings formulated with BAKELITE resins



"Ucilon" Protective Coatings based on BAKELITE Vinyl Resins, used on this tank, are produced by **United Chromium, Incorporated,** New York 17, N.Y.

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The case of Tank No. 82 is a typical one. A conventional coating failed. Rather than continue with costly short-lived maintenance, Colgate-Palmolive Company engineers undertook extensive testing of a wide variety of coatings.

Coatings based on BAKELITE Brand Vinyl Resins proved superior in these tests and, consequently, were applied to the tank structure shown in the photograph. That it will be a long time before further maintenance work is needed has been shown by case histories over and over again.

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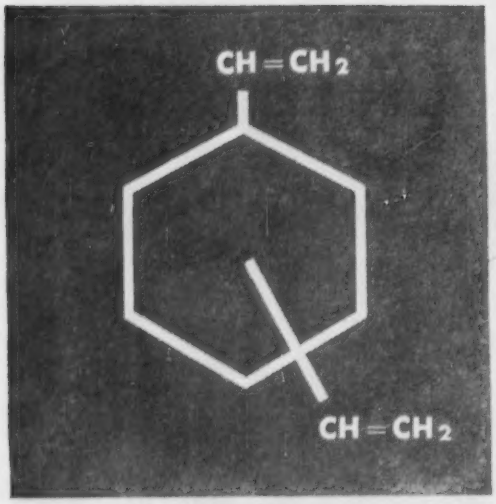

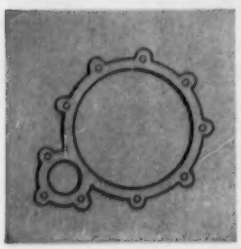

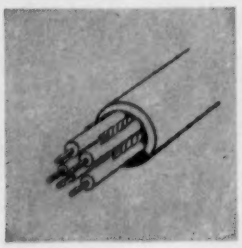

● Divinylbenzene (DVB) is a clear, mobile liquid. A highly reactive bi-functional monomer, it is of interest as a chemical intermediate and as a cross-linking agent for various polymers. DVB is useful for the production of copolymers such as synthetic ion-exchange resins, potting and laminating resins, modified drying oils and alkyd resins, and synthetic rubber.

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business under the name "Humble." This order came after the two litigants made an agreement that included a cash payment to the sulfur concern, which will now be known as Houston Gulf Sulphur Co.

•

Suit over Secrets: Still another court case in the Southwest this week: At Tulsa, Okla., Warren Petroleum is asking the U.S. District Court to enjoin R. E. Meyer—formerly director of Warren's research laboratory—from revealing its trade secrets. The company seems particularly keen on safeguarding its process of oxidation of light hydrocarbons.

KEY CHANGES. . .

William C. Foster, to executive vice-president, Olin Mathieson Chemical Corp. (New York).

John H. Lux, to president and director, and **Timothy F. Murphy,** to board vice-chairman, Haveg Industries Inc. (Marshallton, Del.).

A. P. Gates, Jr., to assistant sales manager, Virginia-Carolina Chemical Corp. (Richmond, Va.).

Bernard Blomberg, to president, **Ray C. Cooper,** to vice-president and sales manager, Gillespie Varnish Co. of Texas (Longview, Tex.).

Carlton Bates, to president, Solvay Process Division, Allied Chemical & Dye Corp. (New York).

E. Langford Jones, to director of sales, and **Charles A. Grant,** to manager of chemical cotton sales, Virginia Cellulose Dept., Hercules Powder Co. (Wilmington, Del.).

C W Report

Next Week . . .

Chemical Week takes a look at which companies are doing what to boost creative output of their researchers and engineers, and how effective it all is.

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3283

TRI'S DILLON: Despite competition, a heyday for synthetics.

'Still Plenty to be Learned'

Next month, Australia will play host to the first international wool textile research conference, a truly unique function for the research-shy wool community. Under the auspices of Australia's Commonwealth Scientific and Industrial Research Organization, about 150 wool experts from around the globe (a dozen of whom will be from the U.S.) will gather for week-long sessions in Sydney, Geelong and Melbourne. Their goal: to map a scientific counterattack on the acrylic and polyester synthetics that have captured wool's market strongholds.

Among the participants in the unprecedented gathering will be John Dillon, director* of the Textile Research Institute (Princeton, N.J.), the only industry-supported laboratory carrying on a program of basic and applied research on all fibers—synthetic and natural.

Astride the fence separating synthetic from natural fibers, Dillon is in one of the best possible positions to discern and evaluate developments in fiber technology.

To Dillon there's no question that synthetic fibers are still in their heyday—notwithstanding the efforts of natural-fiber researchers whose work with cotton has recently paid handsome dividends.

Leading examples of cotton progress are the new wrinkle-resistant treatments (*CW, June 25, p. 86*) developed by Dan River Mills, Inc. (New York) and England's Tootal-Broadhurst-Lee Co.

These treatments, Dillon points out, are of a resinous nature (e.g., urea-formaldehyde, melamine-formaldehyde etc.), leave something to be desired in cost and ease of application. TRI is probing fundamental reactions of cotton with an eye to achieving better properties by strictly chemical means.

"Cyanoethylation (i.e., treatment with acrylonitrile) is a step in this direction," says Dillon, "but by no means the entire answer to cotton's problems. Designed primarily to impart rot resistance, the process is expected to expand cotton's use in bagging, shoe thread, etc. But while it's true that cyanoethylation enhances other properties, notably receptivity to noncotton dyestuffs, such modifications are of doubtful practical value: it's easy to get the dyes in, but it's also

* And Harold DeWitt Smith Medalist for 1955. This award, given annually by Committee D-13 of the American Society for Testing Materials, is for outstanding accomplishment in the development and application of fundamental knowledge of textile fibers.

"The encouraging thing is that chemical firms are evolving new concepts, proving that toxic reagents need not be permanently excluded from the mill."

easy to get them out—meaning their fastness is not high."

The really encouraging thing about cyanoethylation, in Dillon's estimate, is that chemical firms (*CW, Aug. 21, '54, p. 97*) are evolving new concepts in natural fiber technology. They're proving, among other things, that toxic reagents (e.g., acrylonitrile) need not permanently be excluded from the textile mill.

Despite these advances, however, Dillon notes that most of cotton's recent gains have accrued from smart merchandising that has had the two-fold effect of displacing viscose and acetate while increasing the general market for cotton textiles.

"Compared with the pace set by cotton," notes Dillon, "wool research has been singularly slow. About a tenth as much wool research is carried on in this country—mostly by the government (e.g., the Dept. of Agriculture's Western Regional Research Laboratories) and other than mill laboratories.

"About the most important recent wool find," according to Dillon, "is the discovery by Japanese researchers Horio and Kondo that the cortex of wool fiber consists of two different portions (named the paracortex and orthocortex) that are twisted around each other in phase with the crimp. Investigation of this property, now under way at TRI under the guidance of assistant research director Joseph Dusenbury, may unlock such secrets of the fiber as the reasons for its built-in crimp, tendency to curl in alkali, etc.

"Crimp is the big reason wool continues to hold sway in many high-quality textile materials. Thermoplastic fibers, artificially crimped, tend to remain elongated when stretched, while wool snaps back to its original dimensions. This property gives wool fabrics high resiliency and soft texture. It's a characteristic all synthetic makers are trying hard to match."

Among the strongest factors indirectly operating in favor of wool and cotton is the extremely high cost of developing a new synthetic fiber.

To minimize the risk on their research and development investments, new fiber producers now engage in exacting, drawn-out evaluation programs before launching their product in the commercial market.

For this and other reasons, at least three embryonic acrylics are long overdue: American Cyanamid's X-54, reportedly a wet-spun (into a coagulating bath), high-porosity, low-density fiber with good dyeing properties; Tennessee Eastman's M-24; and Goodrich's Zetek. A good bet to buck this combination of circumstances, in Dillon's opinion, is Celanese's Arnel cellulose triacetate fiber (*CW, Dec. 11, '54, p. 78*). Reason: low price (around 55¢/lb. for the staple), coupled with properties resembling those of hydrophobic fibers.

Meanwhile the synthetics that have already made the grade are strengthening their commercial grip. Consumption of man-made fibers has reportedly increased at twice the rate of natural-fiber consumption over the past two decades. Much of this rapid growth has been in a myriad of industrial applications.

But synthetics have problems, too. The biggest, as seen by Dillon, is to learn more about translating fiber properties into fabric properties. "You just don't change to a completely new technology overnight," he explains. "There's still plenty to be learned about how to use chemical fibers to best advantage. If we can do that," he opines, "new markets for fibers in both textile and nontextile uses (e.g., tire cord) are sure to result. And prosperity in the textile business may cease to be an anomaly."

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Second Start

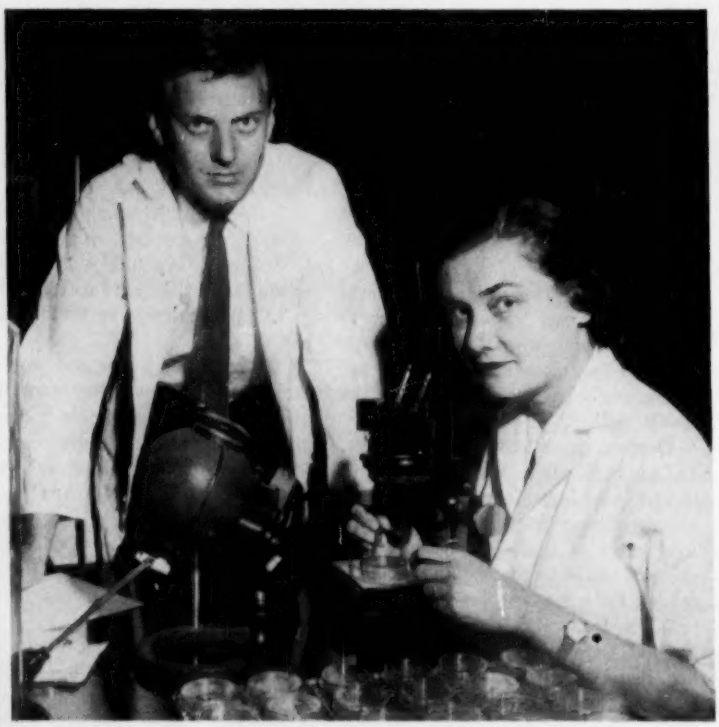
A new intermediate is moving into the area of commercial availability. It's the diacetal of malonaldehyde, a reactive molecule that is angling for applications in the synthesis of drugs and dyes.

Right now the compound may be had as the mixed diacetal—i.e., malonaldehyde triethyl monomethyl diacetal. But Kay Fries Chemicals, its producer, is pilot-planting the tetramethyl diacetal.

Malonaldehyde diacetal behaves pretty much like other dialdehydes. It readily forms dioximes, reacts with alkylvinyl ethers to give higher n-alkoxy aliphatic dialdehyde acetals. Reaction with substituted anilines and hydrazines yields β-amino substituted acroleins and pyrazoles, respectively; ureas combine with the compound to form pyrimidines. Isoxazole, of interest to cancer probers, may also be synthesized by way of malonaldehyde diacetal.

Members of the above-mentioned chemical families have found remunerative employment as dyestuffs, antibacterials, analgesics and research biochemicals. More specifically, malonaldehyde diacetal offers an interesting route to sulfa drugs, is also being investigated for its ability to insolubilize (or cross-link) proteins and polyhydroxy materials.

An outgrowth of Kay Fries' research



Reprieve for Monkeys

JORGEN FOGH and Thelma Dunneback are two-thirds of the University of California team that has learned how to bypass the monkey in polio vaccine production. With fellow virus researcher Elsa Zicter, they have developed a method of growing polio virus on human placenta tissue, readily available and potentially much less costly than monkey kidneys. Application of the discovery to large-scale vaccine production is now under study.

MATHIESON

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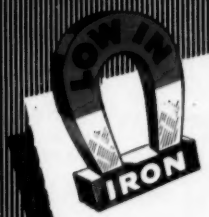

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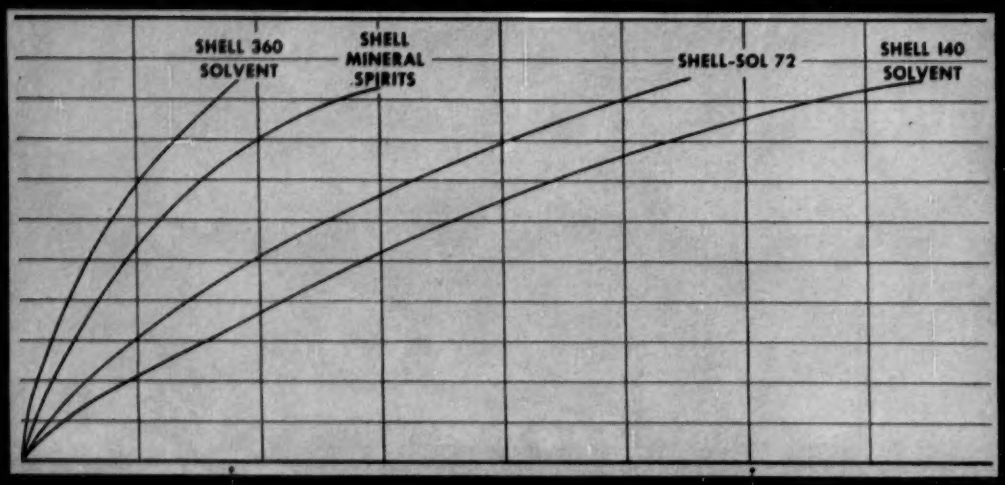

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These solvents, as distinguished from aromatics, are notable for lack of objectionable odor, together with a relatively wide range of evaporation rates. They are used extensively where these qualities are required.

Detailed specifications of these Shell Solvents are contained in this booklet which will be mailed on request.

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, NEW YORK

with trialkyl orthoformates (from which diacetals are readily obtained), malonaldehyde diacetal still bears its development price of $1.85/lb. A cost in the range of $1.25/lb., however, might materialize if production can be materially boosted.

This is not malonaldehyde diacetal's first appearance as a commercial chemical. Both Carbide and Carbon Chemicals and General Aniline produced development quantities at one time, have since discontinued the product. Kay Fries, incidentally, is licensed* by General Aniline to produce the chemical by reaction of an alkyl orthoformate and an alkylvinyl ether.

•

Unmasker: Chemists of Firestone Rubber have devised an effective new spectrophotometric technique of identifying vulcanization accelerators in aqueous extracts of rubber products. Key: ultraviolet absorption curves over the 220-380 millimicron region. Thiazole, thiuram, thiocarbamate, amine and guanadine accelerators are said to be readily identified in rubber samples down to 2 grams. Interference by other rubber chemicals (e.g., softeners and anti-oxidants) reportedly is negligible

•

Direct Action: Researcher J. M. Tedder of Scotland's Edinburgh University has devised a direct hydrocarbon fluorination that minimizes problems associated with the extreme exothermic nature of the reaction. Tedder bubbles a precooled nitrogen-fluorine (4:1) mixture through the hydrocarbon, illuminates the reaction vessel with ultraviolet light. Aliphatics, carboxylic acids and ketones have been successfully fluorinated by this method, according to Tedder.

•

Synergists: Hydrocarbon oils are spotlighted as synergists for pre-emergence herbicides comprising N-(1-naphthyl)-phthalamic acid, its salts and esters. The calcium salt is claimed to be especially active in combination with the synergistic hydrocarbons. It's all in recently issued patents 2,701,759 and 2,701,560, assigned to U.S. Rubber.

•

Polyethylene Data: Translations of patents and patent applications of Karl Ziegler are now available from Research Information Service (New York). Collected under the general heading, "Metal-Organics," the translations deal with catalysts of the type specified by Ziegler for the production of low-pressure polyethylene.

•

Steroid News: Three new radioactive steroids have been added to Tracerlab's schedule of tracer compounds: cholesterol-4-C_{14}, cholestenone-4-C_{14}, and testosterone-4-C_{14}. All are earmarked for biochemical research.

•

New Service: Stanford Research Institute will be dealing with a new kind of customer when it starts supplying the Bank of America with counseling services in the field of atomic energy. According to the terms of a recently signed agreement, the institute will make periodic reports of nuclear developments, undertake studies of industries with which the bank deals. The arrangement is intended to aid the bank in servicing potential customers in atomic energy activities.

•

Therapeutic Exchange: Researchers of Farbenfabriken Bayer, AG, have recently found that pharmaceutical cation exchangers can be prepared by copolymerizing unsaturated monocarboxylic acids and their salts with unsaturated compounds containing more than one polymerizable ethylene group. Examples of reactants: acrylic acid and ethylene diacrylamide. Products reportedly are effective as laxatives and hyperacidity remedies.

•

Mineral Aid: A group of mineral dressing reagents is the latest offering of American Cyanamid Co. Identified only as "synthetic polymers," the products are said to promote rapid settling of fine suspended solids. Tradenamed Aerofloc, the reagents are said to have been successfully applied in mining, coal processing, and textile mill waste material treatment.

•

Rust Center: To develop countermeasures against wheat rust that reportedly damages $150 million in crops annually in the Dominion, the Canadian government will build a $650,000 rust-research laboratory on the University of Manitoba (Winnipeg)campus. One major project: to find low-cost, side-effect-free chemical rust controls that are superior to sulfur for this purpose.

* Under U. S. Pat. 2,527,533.

need help in completing the picture?

In today's rapidly changing technology, chemical progress means new products, new processes, new markets. If you plan to meet the challenge through diversification, you may find that your technical staff is not geared to research and development in new fields.

Evans Research offers you an opportunity to look into new activities without capital investment or staff expansion.

For chemical progress . . . through diversification . . . consult Evans Research.

Write today for full information.

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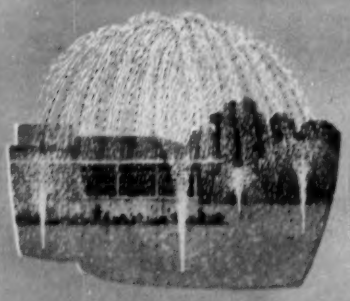
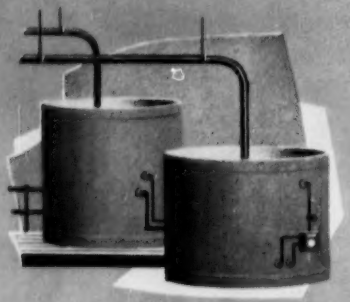
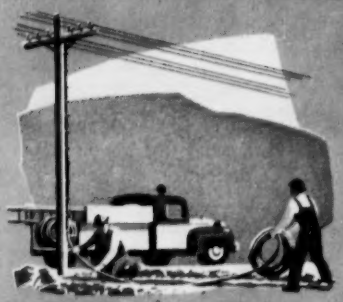


The economy of pipe made of BAKELITE Polyethylene, and resistance to damage by freezing, are two advantages for sprinkler lines, or temporary water or drainage lines.

Connections are dependable, easily made with simple tools. And, there are special types of pipe, like "two-in-one" piping used to connect jet pumps, and multiple tubes for automation.

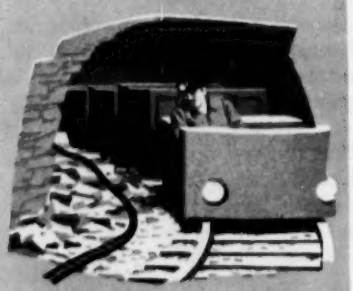


Pipe and tubing is excellent for handling chemical solutions, as well as for cold water, air lines and conduit that must be exposed to chemicals or corrosive surroundings.



Electrical conduit as employed by utilities for pole installations is speedily installed, economical, and provides a tight, weather-protected job. Flexibility makes it easy to bend.

A coil of this pipe, though hundreds of feet long, is so light in weight one man can carry it. It is economical and easy to install in one piece even around curves and corners.



Mines, oil fields, factories, construction work can all take advantage of pipe produced from BAKELITE Polyethylene for permanent as well as quickly installed temporary systems.

See all these ways to take advantage of lightweight, flexible, chemical resistant, easy-to-install, non-corroding polyethylene pipe and tubing

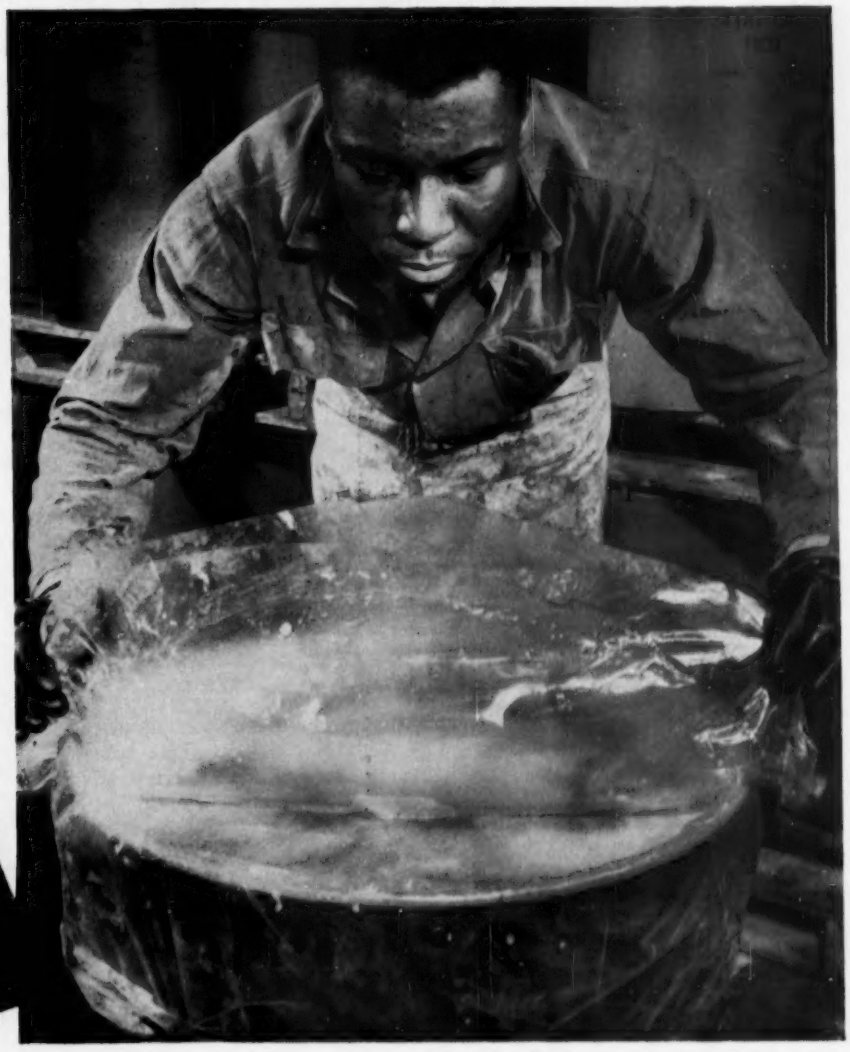
Surely you can put these benefits to work for your own business. Why not write today for names of manufacturers of pipe made from BAKELITE Brand Polyethylene. Address Dept. JG-34.

BAKELITE
BRAND
Polyethylene Plastic

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

SAVINGS SHOW it pays to package in film made of BAKELITE Polyethylene



With a double liner of polyethylene film, this drum is filled with phosphoric acid. A pre-cut circle of polyethylene film is then placed over the top of the drum before clamping on the metal lid. Sealed drums can be handled by any conventional means. **Flexible Package Company,** Chicago, Ill., made these liners from Visqueen film made by **The Visking Corporation,** Terre Haute, Ind.

"for a fraction of the cost . . . identical results"

That's the report of Time Chemical, Inc., Chicago, Ill., after two years' experience with drum liners made of film produced from BAKELITE Brand Polyethylene.

"With a fast growing business," states Irving Bell, partner, "we were faced with a cost and inventory headache in barrel shipments of acids and detergents. Our shift to polyethylene liners in conventional iron drums proved to be the answer. It is inexpensive, lightweight, foolproof insofar as the holding quality is concerned, and has saved us up to $10,000 in inventory necessary in previous methods. *For a fraction of the cost, we are getting identical results.* Moreover, where hygroscopic materials suffered from moisture contamination previously, we have been able to eliminate this hazard altogether by the use of polyethylene liners."

Drum liners, bottles, carboys, pipe and tubing, phials, and sealed envelopes all benefit by the inertness of polyethylene to a great majority of chemicals. It can pay you well to discuss packaging and materials handling in film made of BAKELITE Polyethylene. Call your packaging supplier.

SPECIFY FILM MADE OF

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Polyethylene Plastic

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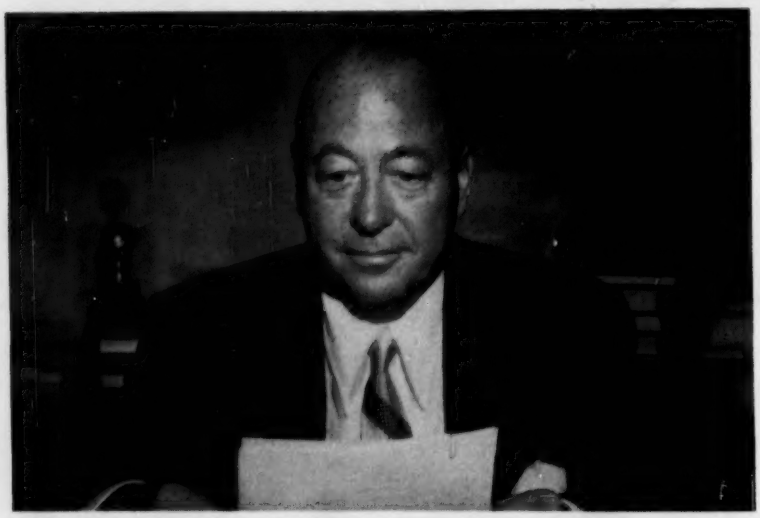


SOCONY'S ANDERSON: 'No need' for ICC control over reshipments.

Highball for Traffic

If your traffic manager is whistling cheerily nowadays, there's reason for it. Good news has been breaking all around him the past few weeks.

First, there's the way the recent hearings went before the Interstate Commerce Commission on the question of whether oil and oil products carried by motor carriers within a single state (after having come into terminals from out-of-state origins) is intrastate or interstate traffic. Hard on this came news that something soon would be done about the dwindling supply of freight cars—a plague for some chemical traffic managers. Then, just the other week, frosting for the cake: Eastern railroads knocked off all charges for carrying pallets, skids and platforms when in use.

Logically, it would be virtually impossible for ICC to maintain one set of regulations for oil and another, different, set for chemicals. Recognizing the possible serious repercussions the outcome of the hearing could have, several chemical companies put observers on the scene. Among causes for chemical industry concern:

- Rates. Should ICC rule that the shipments were interstate, rates would shift to an interstate basis, very likely increase. This is the chief reason for oil and chemical opposition to interstate regulation.
- Red tape. Hundreds of carriers now have no interstate operating permits. To obtain these, carriers must show the necessity of the service and their customers would have to support their claims. Add a waiting period of 6-18 months and you come up with plenty of delay and cost.
- State control. State commerce organizations are generally more susceptible to pressure. Federal control would mean more restrictive regulation.

The whole question arose when three motor carriers asked ICC: Who controls carriers in "reshipment" traffic? After a few carriers filed for interstate permits, others, afraid they'd be squeezed out, flooded ICC with certification requests. Unsure of its authority here, ICC asked oil companies, rail, motor and pipe carriers to state their position.

Andrew Anderson, general traffic manager of Socony Mobil Oil Co. and chairman of the committee on law and regulations of the American Petroleum Institute, sparked spokesmen, found similarity in oil and chemical shipping.

"Our committee is convinced that the transportation under consideration is very definitely intrastate and not interstate commerce," he told the commission. "There is not the slightest need or necessity for the commission to exercise jurisdiction over this transportation."

Two basic points make this intrastate traffic, he said. First, the ultimate destination of the product is not known when it is originally shipped and, second, these products are held over for varying lengths of time at the terminals. This second point, he said, takes the products out of the through-traffic or interstate category on their subsequent reshipment within the state.

Anderson was supported in his arguments by major oil companies, hosts of state officials, and rail and pipeline representatives. Two petroleum firms, however, took essentially neutral positions.

No arguments were presented in favor of making these intrastate shipments interstate. But Lee Witte, traffic manager for Mid-Continent Petroleum Corp., favored ICC control.

Outcome? It's extremely doubtful if ICC will assume regulation of this type of shipment. Traditionally (but with a few exceptions), it has been intrastate; a 1927 Supreme Court decision pointed to intrastate jurisdiction, and ICC appeared (at the hearing) cool to the whole idea of assuming added work. Best tip-off on the outcome derives from the fact that several chemical companies, represented at the hearings, don't plan to file briefs (deadline is next Aug. 15). A few, however, taking no chances, will likely file. In the event ICC does choose to move in on intrastate shipping, it's certain that protests will storm long and hard.

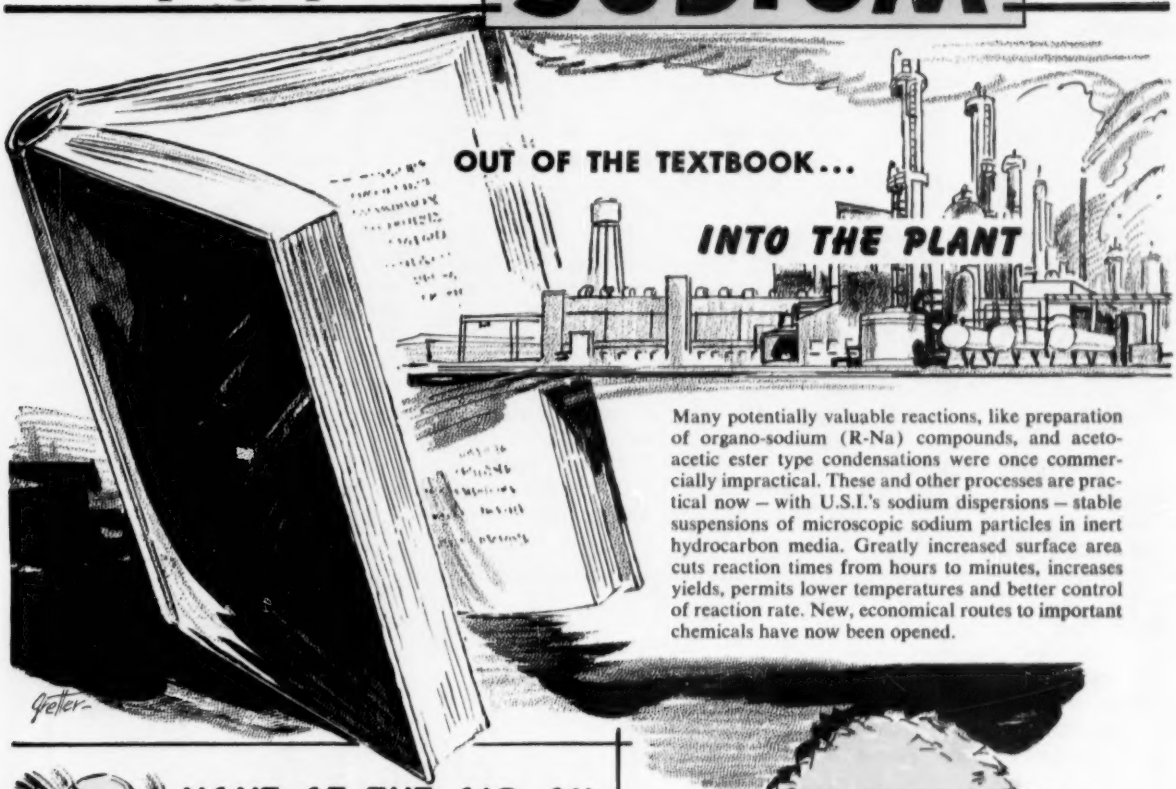
Balm for Boxcar Shortages

In a spot-check of chemical traffic managers, *CW* learned last week that some were feeling the pinch of a current freight car shortage.* One reported that it was insisting on a 24-hour unloading clause in sales contracts (charge is made after that time). Aid, however, is forthcoming. Member roads of the Assn. of American Railroads are launching a program to put 25,000 out-of-service cars into operating condition, purchase some 38,000 new cars (total on order: 55,000).

Only a year ago, a freight car surplus existed—some 67,000 cars/day at year's end. But now there's famine to the extent of 10,000/day. The reason stems chiefly from two facts:

* Tank cars, however, are in adequate supply.

keeping up with **SODIUM**



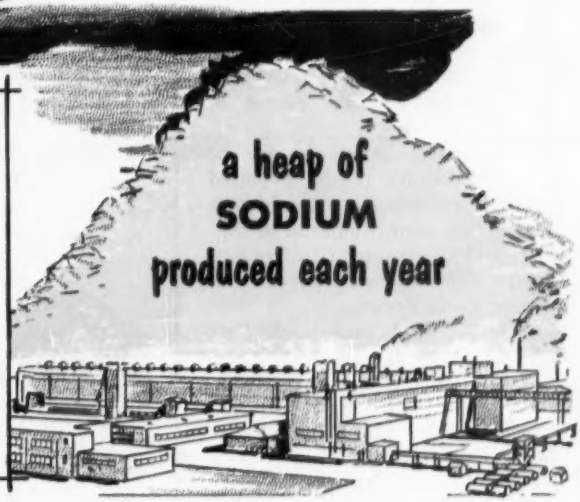
OUT OF THE TEXTBOOK...

INTO THE PLANT

Many potentially valuable reactions, like preparation of organo-sodium (R-Na) compounds, and aceto-acetic ester type condensations were once commercially impractical. These and other processes are practical now – with U.S.I.'s sodium dispersions – stable suspensions of microscopic sodium particles in inert hydrocarbon media. Greatly increased surface area cuts reaction times from hours to minutes, increases yields, permits lower temperatures and better control of reaction rate. New, economical routes to important chemicals have now been opened.

NONE OF THE OLD OIL

Contrary to a common impression, commercial sodium *is not* handled, stored or shipped under oil. U.S.I. ships sodium metal as dry bricks, in steel drums, and cast solid in drums and tank cars. Sodium bricks are handled safely in air. In fact, bricks are molded in the open because sodium does not burn below 120°C – (M.P. 97.5°C).

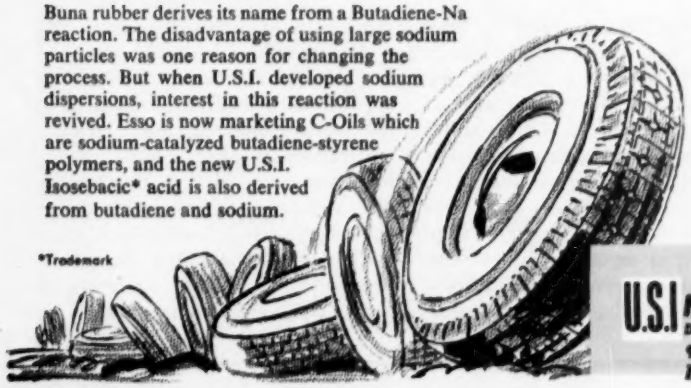


a heap of SODIUM produced each year

BuNa Vindicated

Buna rubber derives its name from a Butadiene-Na reaction. The disadvantage of using large sodium particles was one reason for changing the process. But when U.S.I. developed sodium dispersions, interest in this reaction was revived. Esso is now marketing C-Oils which are sodium-catalyzed butadiene-styrene polymers, and the new U.S.I. Isosebacic* acid is also derived from butadiene and sodium.

*Trademark



It's hard to realize that ¼ billion pounds of sodium are produced in the U. S. every year, putting it emphatically in the heavy chemical class. This enormous consumption is not apparent because so much is used *internally* by producers. U.S.I. sells more sodium than all other producers and continues to pioneer in sodium research as it pioneered SODIUM DISPERSIONS and HIGH SURFACE SODIUM COATED ON INERT SOLIDS.

USE OUR EXPERIENCE — SEE U.S.I. FOR HELP ON YOUR SODIUM REACTIONS.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers Products Corporation
99 Park Avenue, New York 16, N. Y.
Branches in principal cities

• Carloadings for the first half of the year ran 10-12% ahead of 1954 figures. And the coming grain harvest will worsen matters.

• Railroads have fallen behind on car repair. Cars awaiting repair are now 6.4% of the total of all cars. Desirable maximum: 5%.

By cutting the number of cars awaiting reconditioning 22%, 25,000 cars will be added to the fleet. Many of the newly ordered cars won't be available until 1956, so repaired rolling stock will have to carry the load. Repairs will be at the rate of 5,000/month. But even that should ease the shortage chemical firms have been suffering.

Free Load for Pallets

Freight savings are now possible for chemical makers who ship on pallets, platforms and skids. Rail carriers east of the Mississippi are no longer charging for shipping the pallet or support device along with the product. But there are two gimmicks: shippers must specify the weight of the pallet, platform or skid on the bill of lading; the support, although it can have standing sides or ends, cannot be covered.

Further pallet savings also may be in the works. It's reliably reported that some carriers are seriously considering free return shipment of supports. And it's expected that free outbound shipment will spread to Western roads.

All in all, it's been a bright fortnight for chemical traffic executives.

•

Expanding Sales Coverage: Spencer Chemical Co. is reorganizing its sales division into seven departments: sales development—agricultural chemicals, sales development — industrial chemicals, traffic, advertising, industrial chemical sales, agricultural chemical sales, and commercial product sales.

• McKesson & Robbins, Inc. (New York) is opening a sales office in Atlanta, Ga., to provide distribution of heavy and fine chemicals in the area.

• Davison Chemical Division (Baltimore), W. R. Grace & Co., is establishing a sales office in Toronto, Can., to handle petroleum cracking catalysts.

• H. M. Chemical Co., Ltd. (Santa Monica, Calif.) has named two representatives to handle its line of amino acids, purines and pyrimidines. In Chicago: Lachat Biochemical Co.; in New York: Chemicals Procurement Co.

• Flexonics Corp. (Maywood, Ill.) has designated two exclusive sales representatives for expansion joints: Bushnell Controls & Equipment Co. in Los Angeles; Joseph A. Schram in St. Louis.

• U. S. Industrial Chemicals Co., division of National Distillers Products Corp., is mapping plans to open a warehouse in Cincinnati for polyethylene resins.

• Liquid Carbonic Corp. (Chicago) has selected the Indus Sales Co. (Cincinnati) as exclusive distributor of the firm's industrial gases in the Ohio-Kentucky-Indiana area.

• Bigelow Rugs and Carpets, Inc. (New York) has picked the Dominion Rubber Co., Ltd. (Kitchener, Ont.) Textile Division to distribute mechanical mats, woven roving, and wide glass cloth.

• New York Air Brake Co. (New York) has appointed Wilson & Wilson Ltd. (Montreal) to distribute Kinney vacuum pumps and equipment, and liquid pumps in eastern Canada.

• Braun Corp. (Los Angeles) is moving to new warehouses and offices in East Los Angeles. The move gives the West Coast distributor of chemicals and apparatus better than 134,000 sq. ft. of space to handle some 20,000 items.

•

Distribution Education: Part of this summer's workshop seminar program of the American Management Assn. will be devoted to purchasing and marketing. "Administration of the Purchasing Function" will be the sub-

Sperm Oil via St. Lawrence Route

AN INKLING of things to come when the St. Lawrence Seaway opens a few years hence is this shipment of Norwegian sperm oil being unloaded in Chicago. It's believed to be the first batch ever shipped directly from Holland to Chicago via the St. Lawrence water route. Direct water shipment, it is reported, shaves shipping costs substantially. Until the Seaway is ready, only small freighters can navigate the channels.

All 500 tons of the crude oil will be refined into sperm oil and spermaceti by Swift & Company at the firm's Hammond, Ind., Technical Products plant. (Swift also processes sperm oil at its Harrison, N.J., plant.) Sperm oil and spermaceti find applications in light machinery and quenching oils, rust preventives, candles, cosmetics, drugs, fatty alcohol manufacture.

BECCO experts can furnish you proved techniques and guidance on New Uses of Hydrogen Peroxide

New methods involving oxidation, epoxidation, hydroxylation, ring-cleavage, quinone formation and free radical reactions demand the attention of manufacturers in many fields.

Becco's large laboratories and research staff are the source of many of these modern procedures . . . are prepared to help you in the economical application of oxidation reactions in the organic or inorganic fields.

Becco peracetic acid and persulfates, as well as hydrogen peroxide, offer high oxidation potentials, and clean, efficient, specific reactions with minimum by-product formation. For many products they provide the only means of practical synthesis.

Trained Becco technical consultants are available, in the field or at our modern laboratories, to consult with you on tested Becco methods or exploratory work concerning the use of peroxygen chemicals.

Here are Becco H_2O_2 specifications: All concentrations are clear, colorless liquids, miscible with water in all proportions, and show no loss of active oxygen under ordinary conditions. Details for individual concentrations follow:

CONCENTRATION	H_2O_2 WT. % MIN.	ACTIVE O WT. % MIN.	SP. GR.	RESIDUE
27.5	27.5	12.9	1.10	
35	35.0	16.5	1.13	
Form. D	35.0	16.5	1.13	.005%
Form. F	35.0	16.5	1.13	
50	50.0	23.5	1.20	
90	90.0	42.3	1.39	under .005%

We shall send on request interesting bulletins on epoxidation, hydroxylation, in situ epoxidation techniques, and other modern applications of peroxygen chemicals to current industrial applications. *Write for Becco's complete list of bulletins on the use of Peroxygen chemicals.*

BECCO CHEMICAL DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

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Maas Sodium Sulfite is widely used in boiler water treatment.

Maas Sodium Sulfite is an excellent selective depressant in ore flotation.

Maas Sodium Sulfite helps food processors with quality control.

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Sodium phosphates—Ammonium phosphates—Calcium phosphates (Food grade and stock feed grades)—Potassium phosphates—Phosphoric acid—Surface active agents—Oxalic acid—Oxalates—Formic acid—Formates—Acetic acid—Sodium hyposulfite—Sodium sulfite—Sodium carbonate—Triethanolamine phosphate—a full range of photo pure chemicals—and many more.

DISTRIBUTION. . . .

ject of sessions Aug. 11-13; "Improving Sales Methods and Tools," "Direction and Control of the Field Sales Force," "Effective Handling of the Chief Marketing Executive's Responsibilities," and "Developing Accurate Market Facts for Scientific Product Development" comprise the marketing seminar (Aug. 29-31). All sessions are scheduled at Colgate University (Hamilton, N.Y.)

•

Industrial Cinema: "Flaw Location with Dye Penetrants," with color and sound, and running about 23 minutes, is now being offered for free showing by Turco Products, Inc. (Los Angeles). Basically a training tool, the film covers theory and inspection techniques.

• "Eye to the Unknown," a film dealing with mass spectrometry, has been selected the best industrial research film of the year at the Cleveland Film Festival. Outlining the historical development and applications of mass spectrometry, the half-hour color film was produced by the Consolidated Engineering Corp. (Pasadena, Calif.)

•

Payload in Pennsylvania: Chemical firms will soon be able to truck larger loads through Pennsylvania. The state's legislature has upped the weight limit for tandem axle semi-trailer trucks to 60,000 lbs. from 45,000 lbs. Overload penalties and truck registration fees have also been increased.

•

Coming into Commerce: "Queen Size" Saran Wrap is Dow Chemical Co.'s name for its new venture in sizing. The new dimension, 18-in.-wide roll, supplements the standard 12-in. roll. A test-marketing preceded the now-coming national distribution.

• Production is now under way at U. S. Steel Corp.'s new container plant near Camden, N. J. Steel drums and pails (from 3½ to 55 gal.) will be made for the chemical, petroleum, paint and other industries on the East Coast.

• System Tank Lines, subsidiary of Pacific Intermountain Express (Oakland, Calif.), is placing into service a sulfuric acid truck and trailer tanker.

•

For Tomorrow's Reference: Elastomers—new literature, "Facts about Hypalon," provides data on the prop-

FAMOUS LIGHTHOUSES OF AMERICA

Portland Head Lighthouse, Maine, was built between 1787 and 1790 by two Portland masons engaged by George Washington, who instructed them to use rubblestone taken from fields and shores. During the Civil War, when raids on shipping required sighting the light from greater distances, the tower was raised 8 feet. Today it stands 80 feet above land and 101 feet above water at the southern entrance to Portland Harbor. It is one of the four Colonial lighthouses that have never been rebuilt.

A Landmark of Quality in the field of electrochemicals is the name Niagara Alkali Company. First to produce several of these important chemicals in America, Niagara is a pioneer in their development and application. You can rely on Nialk® Liquid Chlorine, Nialk Caustic Potash, Nialk Carbonate of Potash, Nialk Paradichlorobenzene, Nialk Caustic Soda, Nialk TRICHLORethylene, Niagathal® (Tetrachloro Phthalic Anhydride).

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they're not just SHAPES

Hortonspheres are designed for pressure storage

. . . designed to withstand internal pressure so that the more volatile liquids may be stored without undue loss. Basic operating principal of the Hortonsphere® is the fact that no loss can take place unless vapor escapes. And the contents are not allowed to escape as long as the internal pressure does not exceed the setting of the pressure relief valves.

Hortonspheres are available in capacities to 30,000 bbls. Write our nearest office for full information—or estimates and quotations.

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Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

DISTRIBUTION. . . .

erties of chemical rubber; Neoprene Notebook (No. 64) delineates new applications of neoprene. Du Pont (Wilmington, Del.).

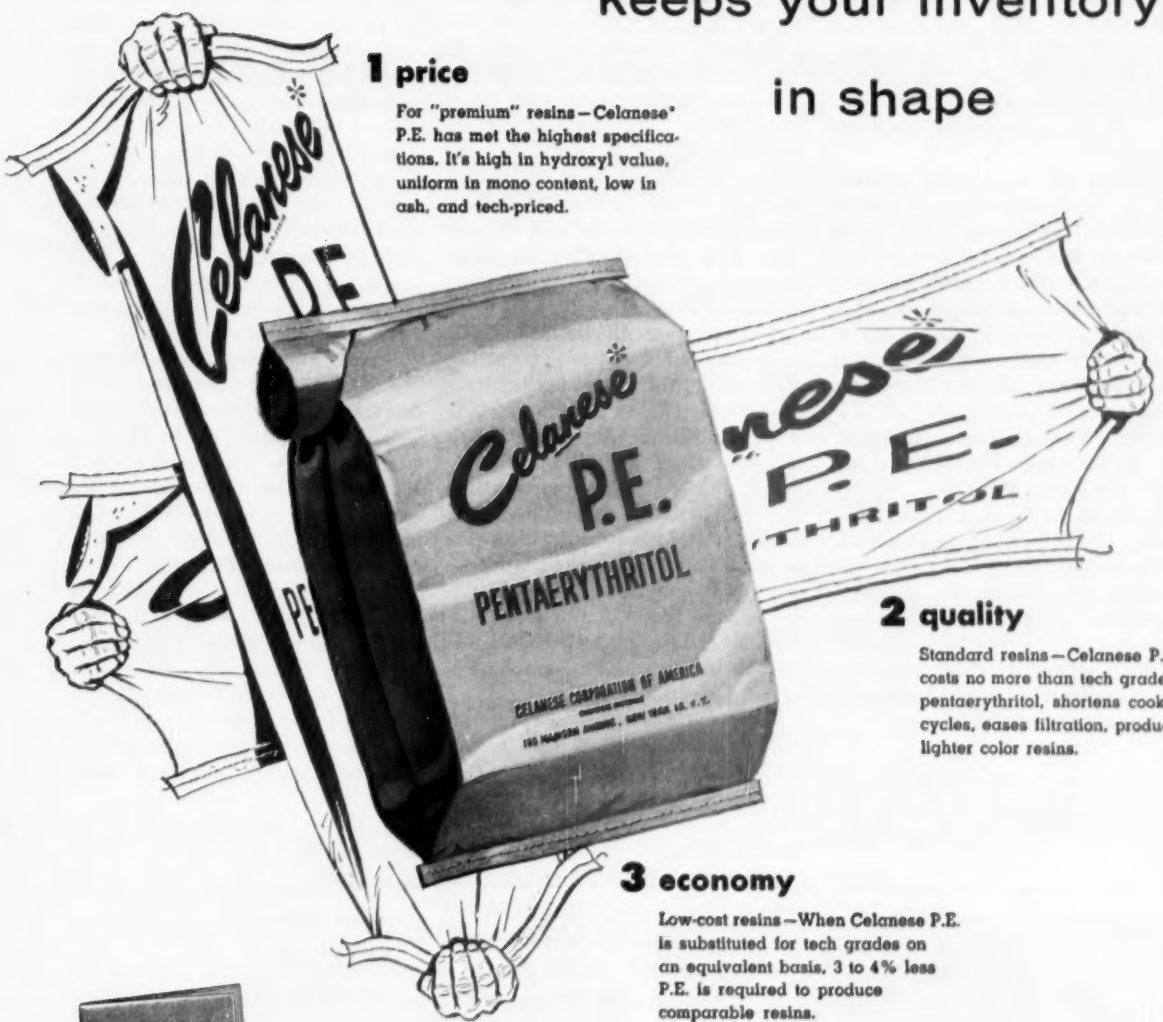
The Twist that Sells

SOMETIMES YOU CAN make a sale by merely twisting a coat sleeve instead of an arm. Doing just that, Simon Williams, research and educational consultant for American Cyanamid, shows home economics, homemaking, and student teachers at Fitchburg, Mass., what can be expected from antiwrinkle treated fabrics.

With over 500 copyrighted textile finishes now available, it's no wonder that the public gets confused when buying a textile product. To dispel this chaos, point up the effects of various fabric treatments, and to thump for finishes in general, Cyanamid is embarking on a consumer educational program.

Still being formulated, the program may include literature, films, advertisements and public lecturers, and other techniques. And the company hopes to interest federal agencies in disseminating knowledge about what cloth finishes will and will not do. Currently, Cyanamid is pushing a vat dye educational campaign (*CW, April 23, p. 56*).

the pentaerythritol with the 3-way stretch keeps your inventory in shape



1 price

For "premium" resins—Celanese* P.E. has met the highest specifications. It's high in hydroxyl value, uniform in mono content, low in ash, and tech-priced.

2 quality

Standard resins—Celanese P.E. costs no more than tech grade pentaerythritol, shortens cooking cycles, eases filtration, produces lighter color resins.

3 economy

Low-cost resins—When Celanese P.E. is substituted for tech grades on an equivalent basis, 3 to 4% less P.E. is required to produce comparable resins.

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Forewarning to Forearm

Poison Control Center, a recently created branch of New York City's Dept. of Health, has a name that makes many specialties manufacturers wince. Nevertheless, many of them are becoming more aware of the need to cooperate with such organizations, which are designed to cope with problems of misused household drugs and chemicals.

Chances are, even more cooperation by the specialties makers will be called for, since New York's move wasn't the first, and will certainly not be the last. Even now, Philadelphia is planning such an accidental poisoning center, and California now hopes to have similar agencies functioning in Los Angeles and San Francisco within a year or so.*

Worthy Purpose: Leona Baumgartner, of New York's Health Dept., explains the centers like this:

"It will be the function of the Poison Control Center to first gather together all the information it can on the ingredients of potentially dangerous preparations and the proper treatment for each of them, and second, make this information immediately available to any physician or hospital faced with the treating of a poison victim . . .

"A secondary function of the Poison Control Center will be to gather reliable, detailed reports on poisonings that occur so that long-range preventive measures can be taken by the department of health, by industry, by physicians and hospitals."

A yearly accidental poisoning toll of 100-125 led New York to set up its center; California, with 158 such deaths in 1953, finds it has one of the highest rates of accidental death from poisonous solids and liquids. New York estimates that for every fatality, there are 10 less serious cases of misused chemicals.†

A point that all health officials underline: children seem to be particularly susceptible to swallowing dangerous materials. In New York, 20% of such cases admitted to hospitals are children under four.

Not all city officials, however, regard the problems as serious as do California and New York health department staffers. In some cities checked by *CW*, only three to four deaths are reported yearly due to accidental poisoning, and officials there feel the problem hardly warrants establishing a special group.

Tell Them Again: In large cities or small, health officials say their prime job, and a never-ending one, is education of the public—to tell again and again that household chemicals must be kept out of the reach of children. Taste, look and smell don't seem to discourage a youngster—within the past few months in New York City alone there have been cases where children have swallowed liquid synthetic detergents, chlorine bleach liquids, aerosol shave creams, after-shave lotions, and mothballs.

Because parents do forget, and because children will eat anything they can get their hands on, doctors and health officials have the job of dealing with accidental poisonings. Their problem is where to go for information on antidotes—provided, of course, they know what chemicals they face.

Secrecy Stumbling Blocks: In some cases, chemical content is hard to determine—provided that the accidentally taken compound can be identified at all (*see below*). But most hospitals and health centers have lists of the components of various specialties. One such list was provided by the Academy of Pediatrics (Evanston, Ill.); a more recent compilation** has been made by Morton Rodman, at the Rutgers University College of Pharmacy.

Rodman put together his list by querying specialties makers directly —but hardly 50% complied. Rodman's particular peeves: the manufacturer who doesn't want to give away "trade

* Cities already set up to pay special attention to the problems of accidental poisoning are Boston; Cincinnati; Dallas; Durham, N. C.; Indianapolis; Louisville; New York; Phoenix, Ariz.; Springfield, Ill.; Washington, D.C.; Chicago.

† Reporting the accidents to the center are over 100 "Poison Control Officers" at various hospitals throughout the city. Besides reporting and checking accidental poisonings, they receive and distribute scientific information from the department's center.

** The Academy's list is now out of print. It —and this will be true of all lists—was soon outdated.

A Case in Point

NOBODY HARMED, everybody happy, in this case of accidental poisoning. Carolyn Bobbit, four, and her brother, Edward, returned home from the hospital last fortnight after six days' treatment for swallowing a handful of lindane tablets. Doctor's problem when the children were admitted to the hospital: unfamiliar with the generic term lindane, medics were unsure of what treatment to start.

After several frantic calls to various firms, the hospital finally located William Graf, an extermination expert with Vogel-Ritt, Inc. (Philadelphia), who pointed out that lindane poisoning should be treated like ordinary benzene hexachloride poisoning. Graf thinks the accident shows a need for better labeling, as well as a need for pesticide users to take care in disposing of old materials.

It also strikingly points up that a term familiar to industry can be totally unfamiliar to the medical profession.

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secrets," and the one who claims complete safety for his product, although it contains chemicals that are either potentially hazardous, or on which no real toxicity studies have been made.

Although most producers of household chemicals express a willingness to cooperate when a physician calls them directly, health department officials point to several flaws in this last-ditch procedure: Often, the emergency calls are made at night or on weekends—and the person who knows a specialty's ingredients can't be located. Sometimes, the product label doesn't list enough information to reach the manufacturers, and in some cases (of distributors), the firm selling the product doesn't know exactly what is in his product, nor the procedures for dealing with its misuse.

Label Could Tell: Ideally, say health department officials, the labels should carry ingredients, give antidotes. Most agree that the labeling suggestions worked out by the Manufacturing Chemists' Assn. and the Chemical Specialties Manufacturers' Assn. are excellent—the trouble arises, they say, when properly labeled bulk chemicals are packaged for retail use—the small-container labels don't say all they should.‡

Federal regulations pretty well cover caustics and pesticides; some cities have extra regulations covering compounds like carbon tetrachloride and similar chlorinated hydrocarbons, and also some flammable specialties. It is the hope of most public health people, as well as manufacturers, that accidental poisonings won't force complicated, design-spoiling labeling.

Penalties: So far, the penalties imposed by regulations are the least worries of firms whose pesticides are misused. Far more important is loss of sales and prestige by a company whose products have fallen into disrepute. In addition, there is the ever-present spectre of liability suits.

Admittedly, better labels, more cooperation with public health officials, and establishment of poison control centers won't automatically end suits and sales losses. But health officials believe they could lower the death loss to accidental poisoning—and that's the most important objective.

‡ At recent meetings, CSMA generally agreed that the ingredients of polishes, cleaners, etc., should be stated on labels in broad terms. It is against suggesting treatment, since general treatments for poisons are available to physicians, who must also consider the basic condition of the patient.

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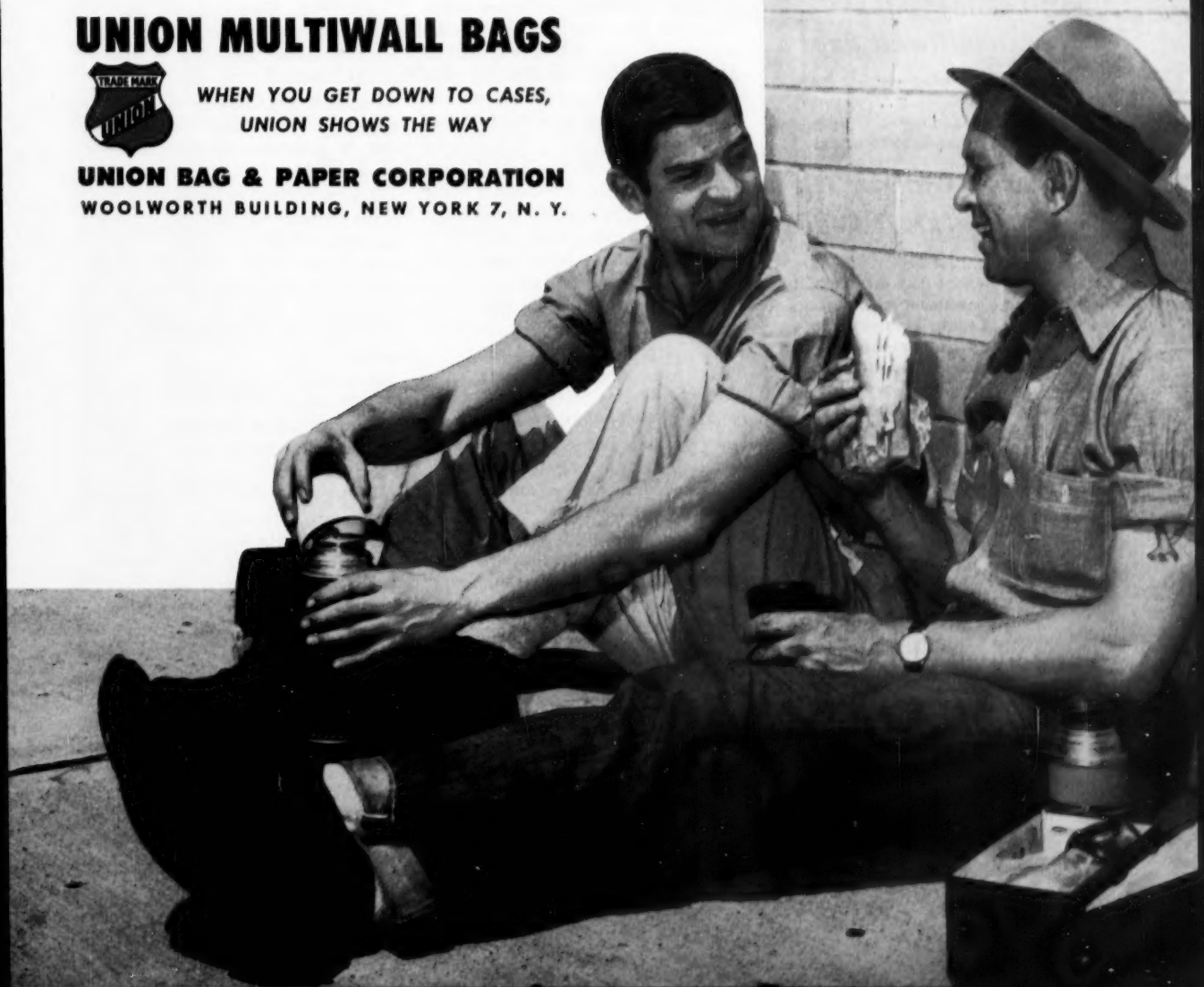

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As Ernest Hemingway's best-seller, "The Old Man and the Sea," points out, catching the fish is only part of the problem. To be able to make money in commercial fishing you also have to be able to keep the fish until you can sell them.

In the novel, the old man's marlin was eaten by sharks as he brought it home lashed to the side of his small boat; the real-life, commercial problem is spoilage. Fishing boats sometimes have uneasy times getting their catches home in salable condition after a long sea trip, even though the boats usually carry ice to pack the fish.

For some time, researchers have tried to beat this problem with combinations of antibiotics, usually with little success. But experiments* reported this month in British Columbia may provide the answer—and set up a big antibiotics market.

Chlorotetracycline (Aureomycin hydrochloride), the Canadians found, can be used to make a substantially better ice for keeping fish. The chlorotetracycline (CTC), mixed through the ice, kept the bacteria in eviscerated blueback salmon, stored 4 days, down to a negligible count (in a plain ice control salmon stored the same time registered counts as high as 1.1×10^8/g.).

*Conducted by Pacific Fisheries Experimental Station's (Vancouver, B. C.) D. C. Gillespie, J. W. Boyd, H. M. Bissett and H. L. A. Tarr, with the cooperation of Lederle Laboratories Division, American Cyanamid Co., Seaplant Chemical Corp., Kraft Foods Ltd., and Harrisons and Crosfield (Canada) Ltd.

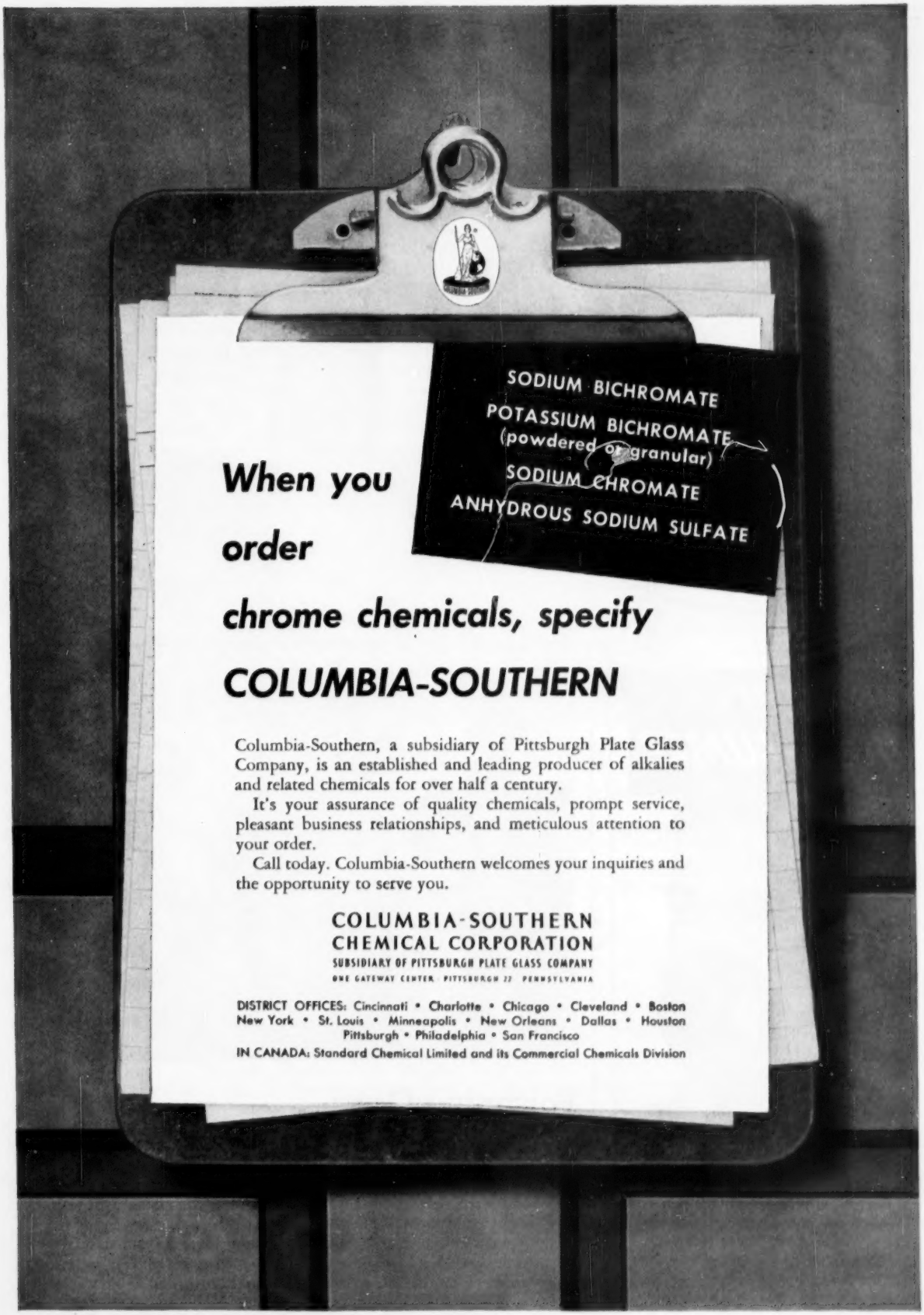
Antibiotic Dispersal: In practice carrageen preparations or carboxymethylcellulose are used to achieve uniform distribution of the CTC through the ice. Carrageen's dispersion properties are enhanced by the addition of potassium chloride and calcium chloride.

Three different methods were tried in the experiments: blocked ice, flaked ice and refrigerated sea water, all treated with CTC. Treated refrigerated sea water gave the best results, followed, in order, by treated ice, plain ice, and plain refrigerated sea water.

According to the Canadian studies, the CTC absorbed by the fish presents no contamination problem, because cooking before eating breaks the antibiotic down.

Poultry has also been preserved successfully with CTC ice in experimental trials. The normal shelf life of refrigerated chickens is two weeks—the antibiotic stretched this to as much as a month.

Ready for more extensive application, CTC ice is right now tripping over one big stumbling block—the Food & Drug Administration. FDA is withholding approval because it doesn't want to see "wholesale use of antibiotics." It is afraid resistant strains of bacteria will develop as a result. The researchers believe, however, that thorough cleaning between trips will eliminate this possibility.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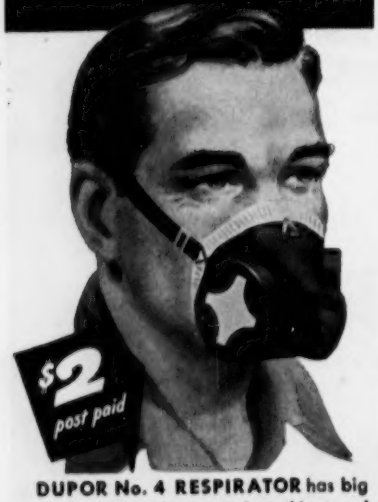

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SPECIALTIES

Early Autumn: Leaf fall can be hastened by a new compound devised by Geoffrey Barnsley (U.S. Pat. 2,710,794, assigned to Shell Development Co., Emeryville, Calif.). The defoliating material, applied to leaves of plants, is based on N-nitroso-N-methylurea.

•

Inhibitors Analyzed: The Naval Research Laboratory has put some 32 corrosion inhibitors on the couch, analyzed their value for use in aviation fuels. Data on the tests—ferrous corrosion inhibition activity, water extractability, fuel solubility, ash content, water tolerances, etc.—are published in PB 111624, a report put out by NRL, and available from OTS, U.S. Dept. of Commerce, Washington, D.C. ($1 each).

•

Taking the Bugs out of Farming: In New Mexico an air war is being waged against forest enemies: worms, insects and fungi. Hedge-hopping airplanes are spraying DDT over 450,000 acres (1 lb./gal. of fuel oil) to kill spruce budworms, are expected to reduce infestation 97-99%. Grasshoppers in a 350,000-acre area will be dealt aldrin this summer. Heckathorn & Co. (Richmond, Calif.) will formulate the insecticides for these operations, as well as for similar cleanups later in Montana, Nevada and Utah.

• Insect enemies in Costa Rica will have 70 to 150 formulations to avoid—products of a new insecticide plant in San Antonio de Belén. Under the Quimagra label, the formulations will be sold throughout Central America. Material, including chlordane, DDT, Toxaphene, BHC, aldrin, dieldrin, Heptachlor, will be bought mainly from U.S. suppliers.

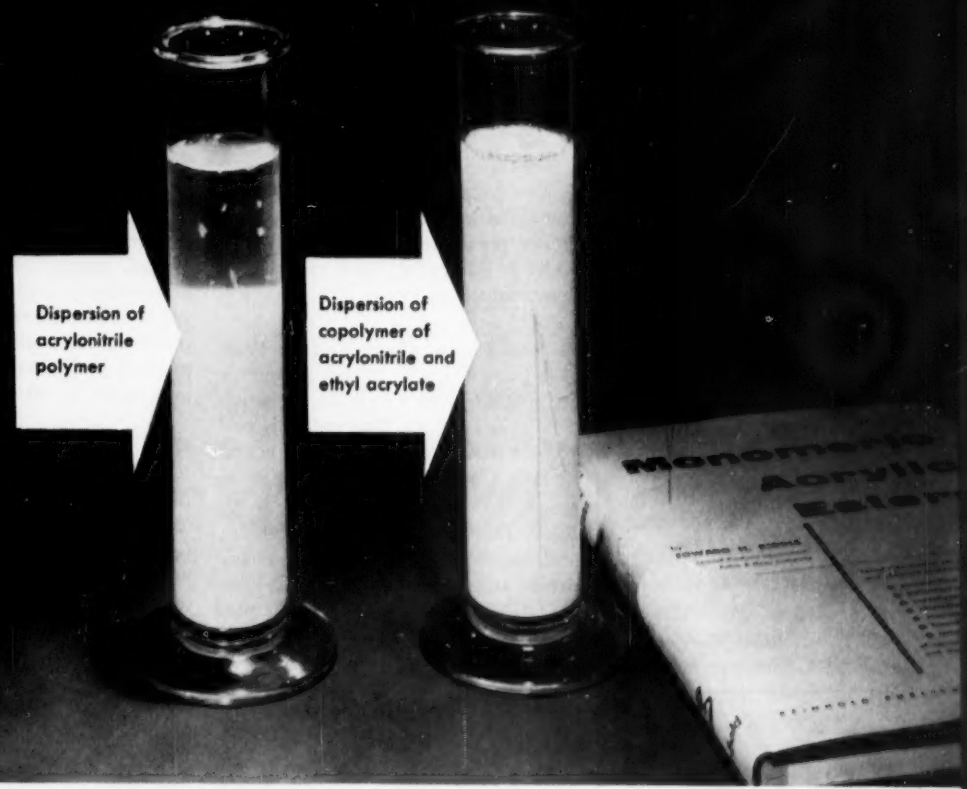
•

Dust Relief: Ontario Paper Co., Ltd. (Thorold, Ont.) is now selling a paper waste-liquor as a road binder. Aqualig is described as a neutralized ligninsulfonic acid containing some wood sugars.

The firm suggests the material for

Poisoning Oaks

DEMONSTRATING a new method of killing trees, Oliver A. Leonard, University of California, is poisoning this oak at the U. of C. Hopland Field Station. First he partly "frills" the tree near its base, leaving cuts covering approximately one-third of the circumference. With an oil can, 2,4-D amine is squirted into the cuts. About ½ teaspoon of the arborcide for each inch of tree diameter will bring death within 2-3 years. After the treatment, the trees will sprout no more roots, Leonard says tests to date indicate.



How to Keep Your Emulsions Under Control:

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The stability of polymer dispersions is often improved by emulsion copolymerization with acrylates. A case in point is acrylonitrile. The emulsion polymerization of acrylonitrile usually yields a highly unstable dispersion—one in which the polymer rapidly settles. But when ethyl acrylate is used as 25 percent of the monomer mixture, a well-dispersed latex of excellent stability is produced. Similar results are obtained when ethyl acrylate is copolymerized with vinyl chloride or methyl methacrylate.

Improved emulsion stability is just one advantage of copolymerization with acrylate monomers. Other advantages include permanent internal plasticization, improved aging properties, and increased compatibility with plasticizers and other resins.

Write Dept. SP for authoritative literature on acrylate monomers.

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One-Shot Lube: Designed for applications where lubrication must be infrequent, Molykote 165X has been introduced by the Alpha Molykote Corp. (Stamford, Conn.). The compound is a near-colloidal dispersion of molybdenum disulfide in a tacky and adhesive petroleum base, is said to provide a lubricating film effective at temperatures as low as 0 F.

•

Natural Finish: Clean Surface Products Co. (Chicago) is now promoting its new Ka-na-ba wax finish for household and auto use. The polish is said to be a true carnauba wax, and is sold as both a paste and a liquid.

•

Sticky Developments: Metal-, rubber-, and butyl-to-butyl vulcanized bonds can be achieved with Ty-Ply BC, Marbon Chemical (Gary, Ind.—division of Borg-Warner Corp.) Co.'s new adhesive. Somewhat thixotropic, BC is supplied at brushing viscosity, can be thinned with naphtha for spray and dip application. Undercoats of Ty-Ply UP primer should precede butyl-to-metal bonds, but on butyl-butyl, or butyl-rubber bonds, one coat suffices.

• Plastisol-to-metal bonds are the purpose of Watson-Standard Co.'s (Pittsburgh, Pa.) new 12-837 adhesive. In addition to sticking the decorative or protective plastisol coating to the metal, 12-837 aids protection, being chemical-resistant, and prevents subsurface film corrosion. The bond must be cured or baked at 380 to 400 F for 10 minutes.

• A low water-to-casein solution, to control penetration or decrease drying time without loss of adhesive strength, can be had with a new dispersion of mildly hydrolyzed casein in water: Protovac PL-421. Its viscosity is such that it can be used directly as an adhesive, or it can be used where an alkaline solution of one part of casein in two parts of water can be added directly to the system (most latex and emulsion systems, some pigment dispersions). Borden Co. (New York), maker of Protovac, also says it is good as: dispersing agent for clays, fillers and pigments; stabilizer of alkaline latices and emulsions; complexing agent for heavy metals; source of amino acids.

• A new black crepe-paper industrial masking tape is now available from Permacel Tape Corp. (New Brunswick, N.J.). A smooth backing combined with easy release from the roll eliminates finger abrasion during application. Numbered P 717, it has a masking range of from 50 to 240 F, is designed to prevent cold flow.

•

Colored Courts: A heavy-bodied, plasticized, rubber (latex)-based mastic adds color to asphalt. Flintkote Co.'s (New York) Syntex is applied over tennis courts, walks, drives, and playgrounds with a brush or squeegee to give either a red or green surface.

•

Soft Touch: Velvet-E-Touch figures sun bathers will be soft touches for its newly introduced suntan lotion, Velvet-E-Touch. Compound is said to be nongreasy, contains lanolin, and hexachlorophene. Six-ounce container retails for $1.

•

Spray Solvent: For mechanics, A. W. Chesterton Co. (Everett, Mass.) has an aerosol solvent for loosening rusted bolts and other fittings. SpraSolvo (also available in ordinary cans as Rustsolvo) is said to penetrate rust, red and white lead, tar, grease, dirt, deposits of carbon, graphite, or corrosion. Metal, rubber, paint or wood, the company says, are not injured by the nonacid solvent. The aerosol is available in the 12-oz. size, nonaerosol in pints, quarts and gallons.

•

Drive Fluid: A new automatic transmission fluid, designed to assure correct viscosity at temperatures ranging from —40 F to plus 300 F, is being produced by Permatex, Inc. (Kansas City, Kan.). For use in all eight commercial no-shift drives, the fluid has additives to prevent gum, sludge and corrosion; lubricates moving parts efficiently.

•

Lubricating Powder: Acrawax C Atomized is a finely powdered lubricant for tight-fitting of metal to metal parts, such as screws. Nontacky, noncorrosive, insoluble in water, oil and solvents, it has a melting point of 285 F. Parts to be lubricated can be dusted or dipped into the powder. Acrawax is made by Glyco Products Co., Inc. (New York).

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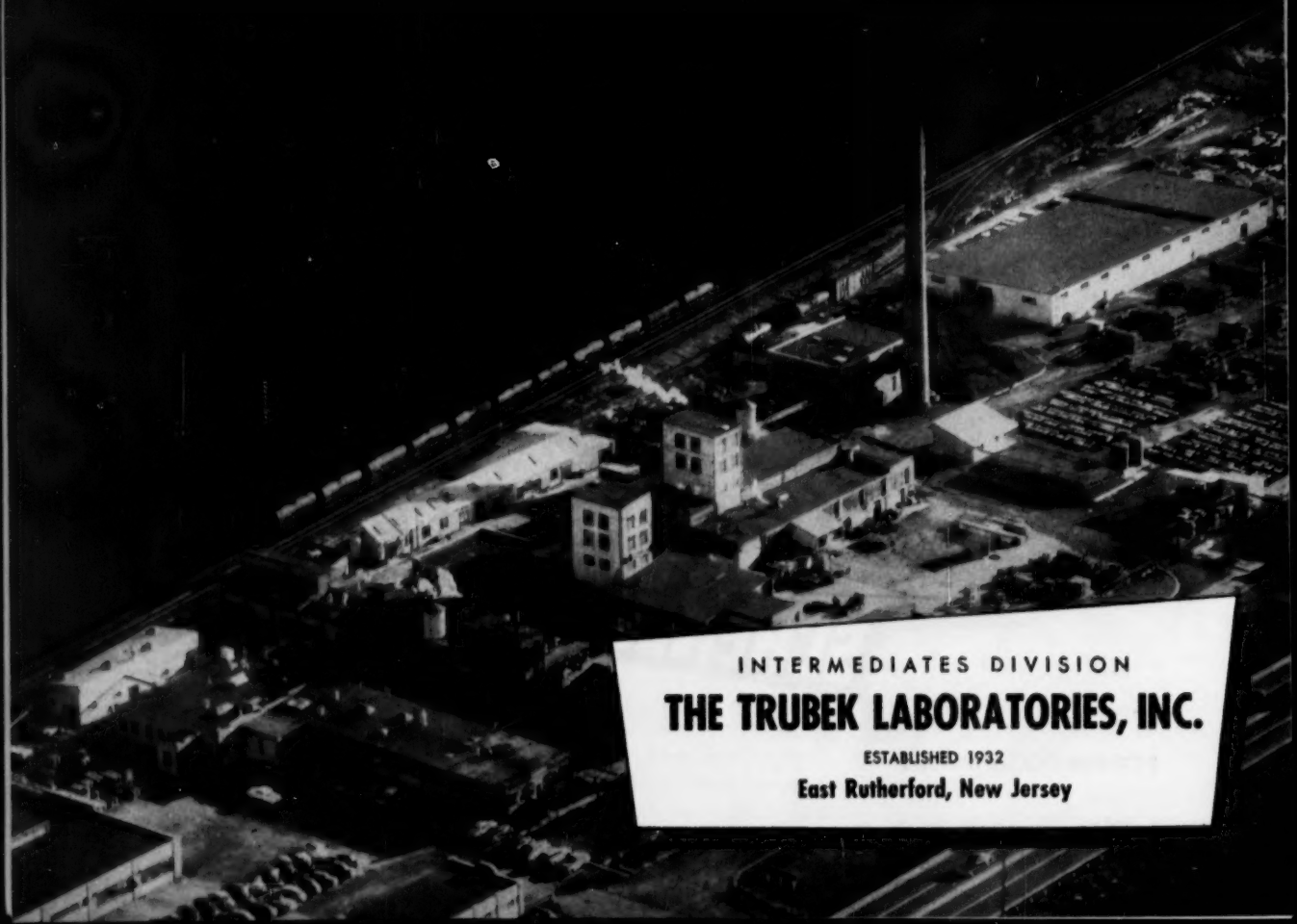

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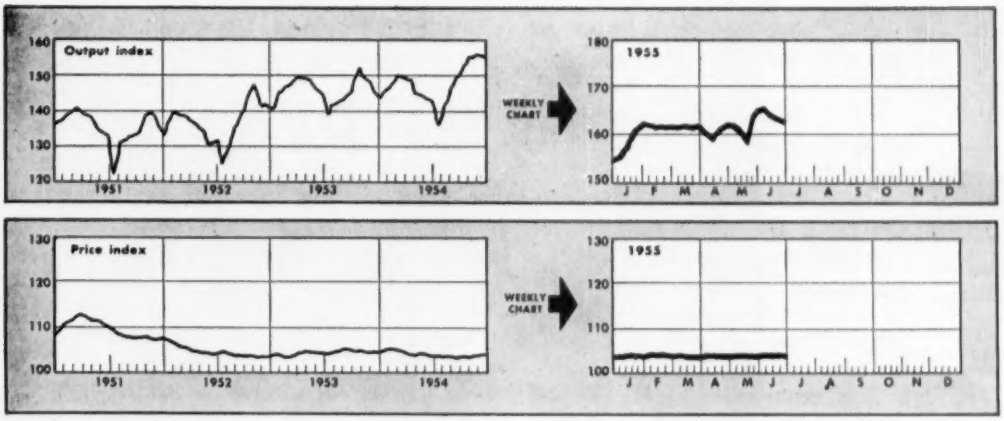

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947-49=100)	161.2	162.1	140.6
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.3	104.1	104.1
Stock Price Index of 11 Chemical Companies (Standard & Poor's Corp.)	494.5	466.8	322.9

MONTHLY INDICATORS—Production (Index 1947-49=100)	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	137	138	124
All Chemical Products	163	165	145
Industrial Chemicals	180	183	149

MARKET LETTER

Urea is in the news again this week. Shell Chemical plans to construct a 150-ton/day plant at Ventura, Calif. The Fauser process installation is slated for completion in time for the 1956-57 fertilizer season.

Well-founded rumor, not denied by Shell, is that Montecatini will play an important part in the venture; but with or without Italian participation, Shell Chemical will have the first urea plant in the Far West.

•

A delicately balanced chlorine market continues to tip toward tightness. The reason: buyers' worry over a possible repetition of inconveniences like those experienced by some during Wyandotte's strike earlier this year. Trouble spot now is one of Columbia-Southern's plants.

Meanwhile, Columbia assures customers that chlorine supplies are moving freely from its other plants. Other producers, too, try to calm buyers' nervousness, point to usual heavy seasonal demands, talk little about prices.

•

Bigger worries are in store for gum rosin buyers. Today, well in the busiest part of the season, gum producers' tentative estimates of the total crop are anything but cheerful.

Disastrous forest fires, widespread insect damage of drought-weakened trees, and the shift of workers from gum tapping to salvage work have all caused production cutbacks.

Last year's gum crop—526,000 drums—was the lowest on record, but at the moment the current season's crop is running 20% lower than at the same time in '54. However, a 10% decline is the more conservative

figure used by expert observers to predict the final output; but even this means a slump of 50,000 drums and real cause for concern.

Long-range price trend? No one's predicting now, but it obviously won't be down.

•

The benzene hexachloride (BHC) price hike you heard about last week was mainly just a switch to the "official" tag from the previous two-month "informal" price.

The boost from $0.007 to $0.0075/gamma unit for the high-grade (36-42%) BHC brought back last year's stabilized price; but producers point out that a further increase to $0.0085 would be required for a return to "normal" price.

Such a full recovery may be in the offing for three reasons: heavier than usual insect infestations are expected this year because of the wet spring; toxaphene—which has taken much of the BHC business—is now reported in tighter supply; some liquidated inventories of BHC, which were dumped on the market, have been absorbed.

•

The alcohol industry sighed with relief this week as grapevine information revealed a "satisfactory" disposal of the government's 10.6-million-gal. stock of alcohol.

The Federal Facilities Corp. now confirms reports that about 3.8 million gal. have been purchased by Koppers; it will be used in the manufacture of styrene. The other 6.8 million gal. (although not yet confirmed) will almost certainly go to Publicker for use in the manufacture of butadiene.

Relief of the alcohol industry stems from knowledge that the only large stock of alcohol, not in the hands of the producers, will not go to resellers; it has, in effect, disappeared from the market.

General alcohol outlook today: production and consumption are in good balance, producers' stocks are stable, no price changes before the first of the year are foreseen.

•

There's a chance that a formal allocation program for helium gas will be established along the same lines as those for steel, copper and aluminum.

Approximately 90% of helium consumption is defense-related. In the past, only informal allocations have been in effect, but the Defense Dept. apparently dislikes having to handle such emergency requests.

Two candidates for administration stand out: the Commerce Dept., which presently supervises other allocations; the Dept. of Interior, which is responsible for production.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending July 11, 1955

UP

	Change	New Price		Change	New Price
Blood, dried, high-grade, unground., 16-17% ammonia, bgs., Chicago, unit-ton	$ .50	$6.00	Tung oil, dms., c.l., N.Y.	$ .0075	$ .2625
Copper cyanide, tech., bbls., 1,000-lb. lots or more	.023	.74	Zinc sulfate, powd., monohydrate, 36% Zn, bgs., c.l., dlvd. E., 100 lbs.	.25	8.50

DOWN

Mercury metal, 76 lbs. per flask, net-flask	$3.00	$275.00	Soybean oil, crude, tanks, Decatur	$ .0025	$ .1175
			Tin metal	.0025	.95

All prices per pound unless quantity is stated.

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PARAFFIN TEST. Sun Toluene is guaranteed to contain less than 0.5% paraffins—substantially below the ASTM maximum of 1.5%. Samples normally contain no measurable paraffin whatever.

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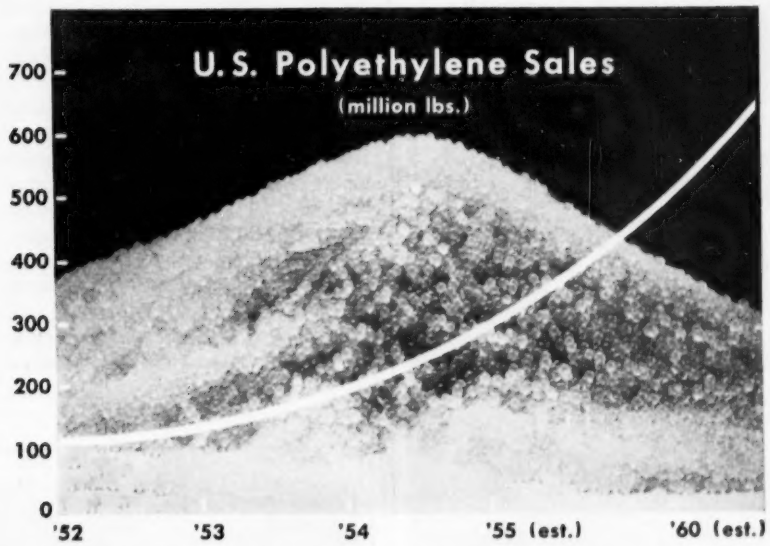


A MOUNTAIN of polyethylene, but sales will climb apace.

Paring for a Saturation?

With U.S. polyethylene capacity crowding a near-600 million lbs./year, the specter of oversupply—perhaps as much as 270 million by '56—poses a market challenge.

Newer poly takers, though (e.g., disposable diapers, bed sheets, etc.), may well help hold down the surplus.

An anticipated surplus usually has a depressing effect on most allied chemical markets. But in the polyethylene field an expected surfeit—some pessimists predict as much as 270 million lbs. over the 570-million-lb. capacity expected by the end of next year—is proving an exciting challenge to enterprising marketers.

Polyethylene producers are setting a collective sight on a better-than-100-million-lb. increase in sales this year—a hike almost double the entire U.S. output of a scant four years ago.

With about 10 producers (at last count) in production, or getting ready to turn it out (*CW, June 4, p. 58*), it's no wonder market men are keeping close tabs on laboratory developments. Hope, of course, is that they will create new big-volume outlets.

Right now, for example, paper- and film-coatings, not too long out of the embryo stage, are due for a harder push toward the big time. This outlet until now, say some sellers, hasn't been exploited to its fullest, although sales do comprise about 12% of all the polyethylene sold.

Ambitious polyethylene makers would like to see paper- and film-coatings match, or overtop, quantities of the raw material that are being consumed by packaging films, a top polyethylene consumer. And these amounts are impressive: close to 45 million lbs. of the resin, for instance, was used in film during 1953; and by last year the figure had jumped to some 70 million.

Within a year or so, the tally may well edge up to nearly 100 million lbs., and some prognosticators envision film packaging using, in the next half-decade, as much as 300 million lbs./year—just about as much as total poly sales predicted for this year (*see chart*).

To boost paper- and film-coating applications to these robust figures should be a tall order. Reason: so little polyethylene coating goes such a long way. But the threat of surplus could catalyze marketers into spectacular action, result in significant progress toward the target.

If past coating performances are any source of encouragement, polyethylene producers need look no further than some events of last year. Then the number of companies in the coating end of the business grew to more than 30, and together these bought about 23 million lbs. of poly for use on paper, film, fabrics, foil, and even cellophane.

Conscientious Casting: Scouting other possibilities, manufacturers have come up with several uses that, they hope, will take perhaps 215-220 million lbs./year in the not-too-distant future. Most promising to date:

- Development of a really disposable diaper.
- Along the same lines, disposable sanitary hospital bed sheets.

The use-once diaper, a poly-coated paper or nonwoven fabric, may open up a market for a whacking 70 million lbs./year of polyethylene. And the sheets, made of paper backed with a thin film of the plastic, could take perhaps 5-10 million lbs./year more than that.

Check off another potential 55 million lbs./year to paperboard milk cartons if present indications hold up. Already polyethylene is being mixed in small amounts with wax to strengthen cartons, and the outlook is for at least a 10% growth in such application within the next few years.

One of the more enticing probable poly outlets is in cigarette packaging. Cellophane and aluminum foil inner wraps haven't yet felt much of a nudge from the newcomer, but boosters insist that a 15-million-lbs./year polyethylene market here is not extravagant.

Another throwaway item, chewing gum wrappers, may soon be taking up to 1.8 million lbs./year of poly—enough to coat some 120,000 reams of paper.

Producers also predict a tremendous call for polyethylene from builders. One channel: poly-lined building and roofing papers that won't dry out, rot or crack, yet are moisture- and abrasion-resistant. Another: thin, tough, temporary walls on construction jobs (*CW, June 4, p. 92*).

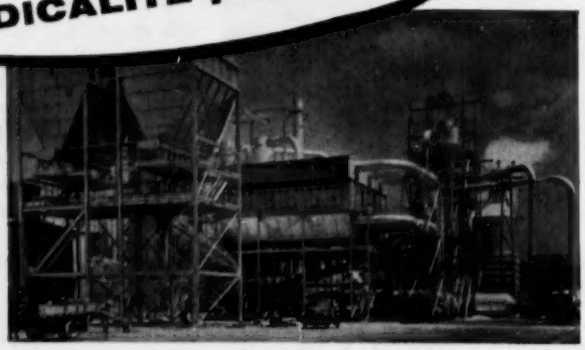
The list of possible applications in the food field seems endless—lining of cereal boxes, other food cartons, paper cups, ice cream cartons, etc.

Bakelite's vice-president and general sales manager, H. K. Intemann, suggests that use of polyethylene would yield stronger, more water-re-

1930
Quarrying for first plant—Walteria

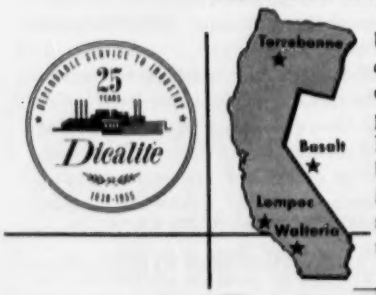
a quarter of a century separates these DICALITE pictures

1955
Fourth Processing Plant—Lompoc



They didn't continue very long—the horse-and-wagon, hand-quarrying methods of our early days. For Dicalite was founded on the idea of *development*, of promoting new uses for that little-known (in 1930) material, diatomite, and working out improved processing methods.

The succeeding 25 years have, we believe, proved the soundness of that idea. Today diatomite . . . also called diatomaceous silica, diatomaceous earth or D.E. . . . has important uses in more than 200 industries, and Dicalite has helped in the pioneering and development of many of these uses. Dicalite products, which now number more than 50, have a valued place in the brewing, pharmaceutical, chemical, sugar, food, paint, paper and other large industries, as filteraids, fillers, insulation and in other capacities.



And Dicalite itself has grown—because of this basic idea of development—from 1930's one deposit, one plant, to 1955's four processing plants and deposits in three states. Four locations, four plants, served by four different railroad systems, insure a continuing, *dependable* supply of the diatomaceous materials upon which many industries rely.

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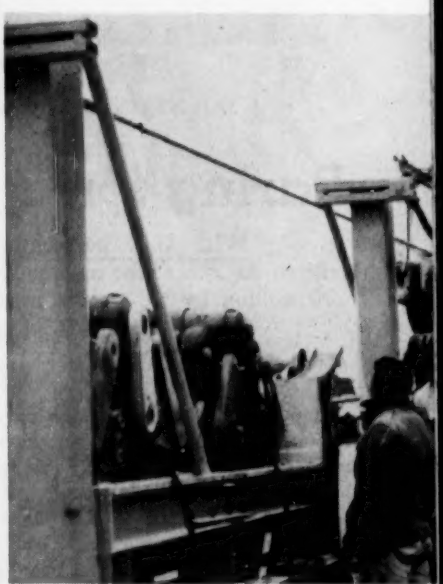
sistant, less prone-to-collapse cartons; cut costs by eliminating certain wrapping materials, or by simply being less expensive.

Such cost savings are encouraging to diaper manufacturers. Long in search of a truly disposable diaper, makers are closely watching the paper-coated polyethylene development. At a fairly low price, the paper would provide absorbency, the plastic would make the diaper strong and resistant to wetting.

Vital birth statistics skiagraph the hefty poly potential for some theory-



Cable Chemicals

CHEMICAL MARKETS are not usually measured by length, but the 2,000-mile transatlantic telephone cable soon to link North America with Europe turns out to be a hefty—albeit one-time—consumer of chemical and allied products. About 18% of total weight of the cable consists of polyethylene and tar chemicals. About 3 million lbs. of the former forms the insulating layer around the central copper conductor; some 5 million lbs. of tar compounds are used for corrosion resistance.

Steel wire for the armor accounts

minded marketers. For instance: if just the 4 million babies born in the U.S. last year were swathed in disposable diapers at the rate of 12 times/day, the poly consumption would hit 70 million lbs. (Papermakers, too, would benefit by a disposable switch, sell another 9-10 million reams/year of paper.)

Even more important from the sales point is the sizable market represented by disposable paper-poly-lined hospital sheets. The estimate—at least 75 million lbs. of polyethylene—would be hit if just one disposable sheet

WIDE WORLD

for the biggest unit weight (25 million lbs.), while copper adds 7.5 million lbs. to the total. Weight of several jute layers amounts to about 4 million lbs. Other chemical items, including acrylic resins, go into the hundred or more electronic signal boosters scattered along the length of the cable.

Shown above, a British cable-laying ship, the *Monarch*, takes aboard the first of two such one-way cables to be laid between Newfoundland and Scotland. It's a joint undertaking by American Telephone & Telegraph and British and Canadian agencies. Cost: $40 million.

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were to be used every day for a year on each of the 1.5 million hospital beds in the U.S. Add, too, the likely demand that would be generated by sick-bed home use.

It's apparent that polyethylene isn't limiting its talent to just one act: in view are developments that would permit extrusion coating by poly of almost any basic material—glass, wood, metals. That plastics men are now openly talking about "possibilities" along these lines, means, of course, that researchers are hot on the trail, expect results soon. Actually, though, such polyethylene outlets are nebulous compared with paper-coating markets.

Whether the latter develops rapidly enough to help whittle the soon-due surplus is moot at this time. But so swiftly is polyethylene carving out markets in these and in other outlets (such as piping, toys, molded housewares items)—some at the expense of other plastics—that a few rooters are even discounting talk of an oversupply.

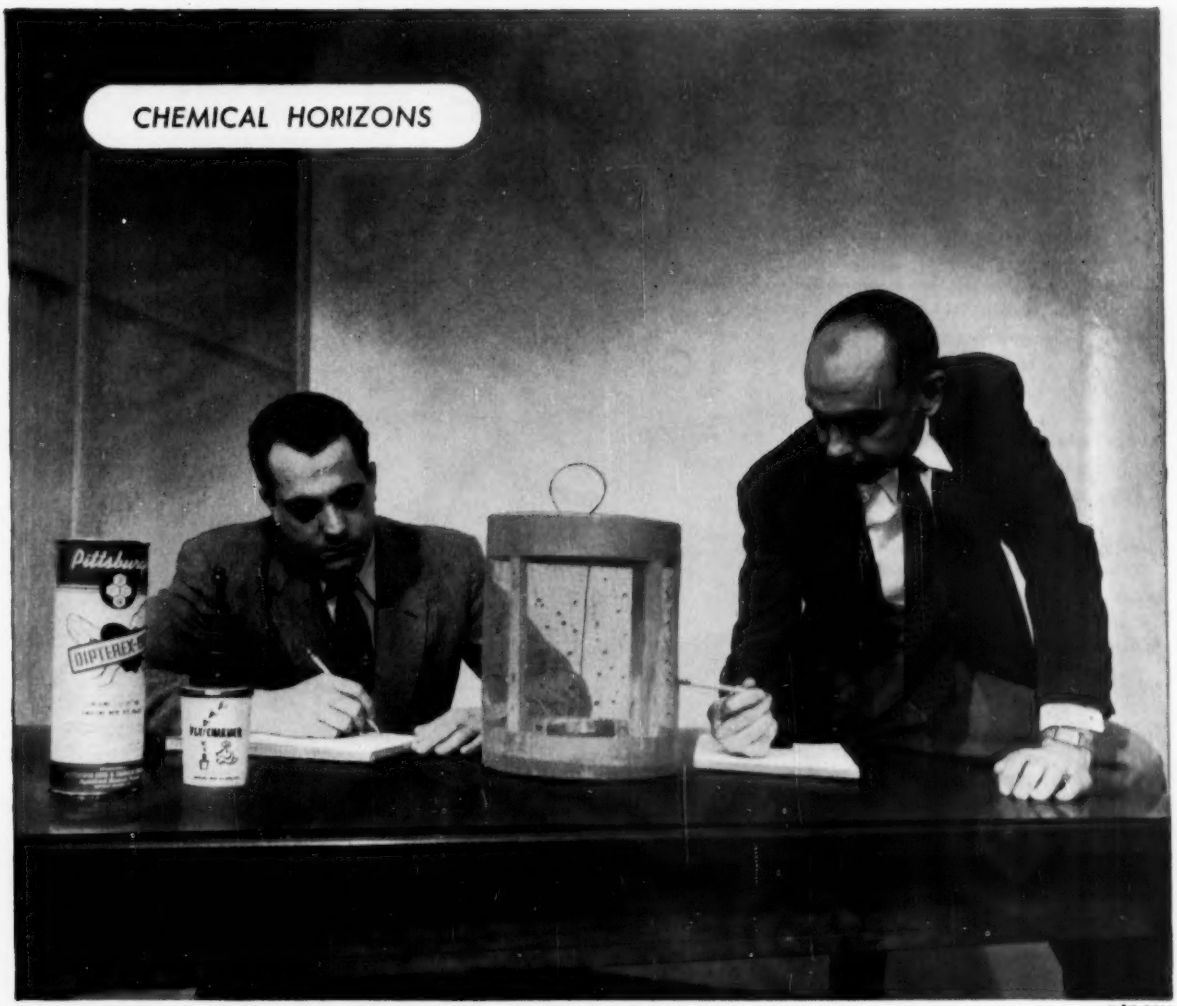
Plasticizer Nudge

Production and sales of plasticizers were up last year; but, as now revealed by U.S. Tariff Commission figures, over-all dollar values failed to parallel the trend.

Total production of all plasticizers in 1954 was 301 million lbs.—an increase of 8 million lbs. over the previous year. Total sales, too, climbed from 235 million to 247 million lbs., although the aggregate dollar value dropped a million to $82 million

Cyclic plasticizer output (principally esters of phosphoric acid and of phthalic anhydride) increased 4 million lbs.—from 224 million lbs. in '53 to 228 million lbs. last year. The sales volume also increased—from 180 million to 186 million lbs.—but dollar values dropped from $60 million to $57 million.

Acyclic plasticizer production (including esters of adipic, lauric, oleic, phosphoric, sebacic, stearic and other acids) increased from 69 million lbs. in '53 to 73 million lbs. in '54. However, in contrast with cyclic plasticizers, dollar values as well as sales volumes showed advances—from $23 million to $25 million and from 55 million lbs. to 62 million lbs., respectively.



W&D 5614

They're Plotting the Perfect Murder

THESE two Pittsburgh scientists are plotting mass mayhem on a killer who has carried more death to humans than all beasts of prey and poisonous reptiles combined. His name is *Musca Domestica*, the common house fly.

Of all the earth's 600,000 species of insects, perhaps none has resisted obliteration more successfully than the house fly. He has developed a smug immunity to almost every modern insecticide science can concoct.

As a leading producer of coal-derived insecticides and other agricultural chemicals, Pittsburgh Coke & Chemical last year assigned a special team of entomologists and chemists to "Operation Musca." Reasoning that it's easier to bring the fly to the insecticide than the insecticide to the fly, the research group set about to explore the habits, likes and dislikes of the house fly.

They discovered, for example, that the most attractive colors to him seem to be the darker shades, that he prefers to alight on horizontal rather than vertical surfaces, and that humidity and temperature have a marked effect on his appetite.

On the basis of this study and extensive chemical research, Pittsburgh recently began marketing two new lure-type fly killers which may prove revolutionary in their effectiveness.

One, called *Dipterex-199*, is a granular bait for use principally on farms. The other, called *Fly-Charmer*, was developed for fly control in the home without sprays or traps. Tests indicate an encouraging inability of flies to build an immunity to the new, fast-killing, odorless insecticide in both products.

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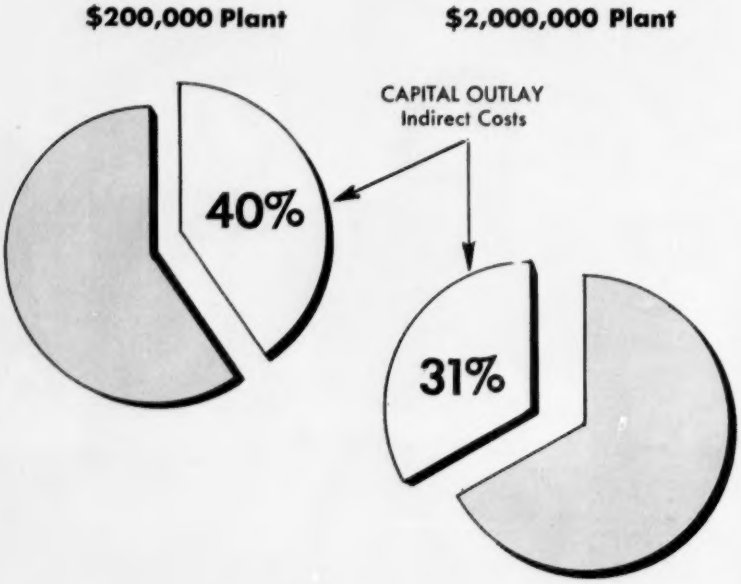
Does Your Plant Need Better Cost Yardsticks?

Chances are it does. But it's particularly important for the small plant to know where its investment dollar goes. Here are two examples that explain why:

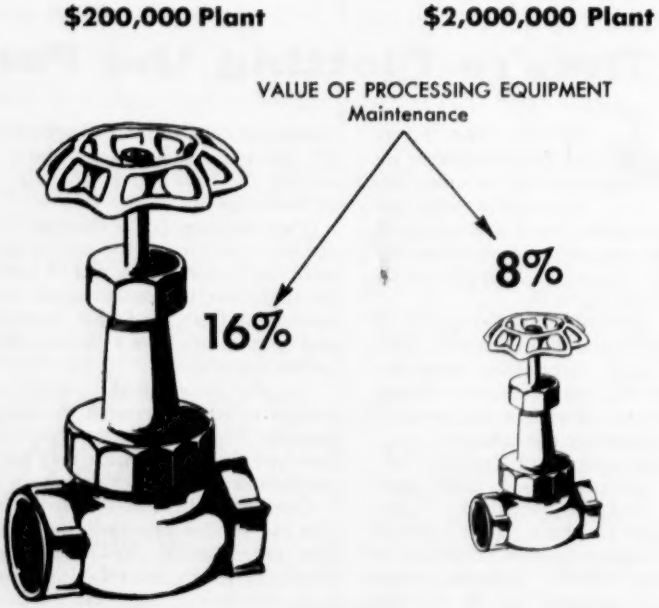
1

Indirect costs, engineering, drafting, etc., take a bigger slice of the small company's capital outlay . . . require the small operator to spend $1.15 to the big company's $1 per unit of installed equipment and building.



2

Higher maintenance costs mean that the small plant has to lay out $2, the big plant only $1 per unit of fixed assets.

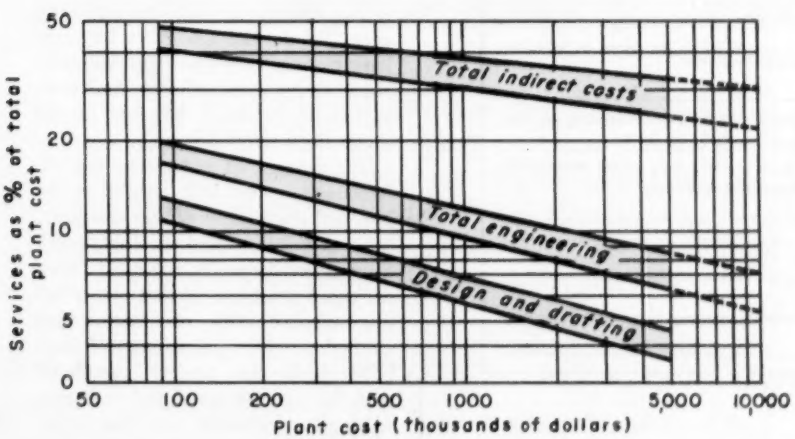


CONSULTING ENGINEER MAHONEY: Chemical plants both large and small will find that . . .

Cost Yardsticks Point the Way to Savings

Rising construction and engineering costs are shrinking the chemical processor's construction dollar. To stretch it, he needs better guides for cost control.

A workable plan: define spending goal—then delegate the authority and responsibility for enforcing it.



ASK YOUR investment broker how your money is being put to work and chances are he'll give you an accounting to the penny. Put the same question to your construction project engineer and you'll probably find it difficult, if not impossible, to pinpoint your dollar's destination. But in engineering projects, the line between the red and the black is often narrow. And to insure a fair return, a plant investment deserves the same consideration as any other financial venture.

Most companies have some sort of yardstick or break-even point by which to judge the attractiveness of a capital risk. Many chemical producers, for example, consider 30% profit before taxes is the criterion. But once the major decision to go ahead is made, there's often no yardsticks to guide the numerous minor decisions that cumulatively determine the success or failure of the entire undertaking. How, then, can the project supervisor know when engineering or drafting costs are out of line? And how can he decide what corrective measures are required?

This week, consulting engineer John Mahoney* suggests a plan for establishing and enforcing the necessary controls. Though no single set of yardsticks can be rigidly prescribed for the entire industry, each plant can arrive at its own best plan by following these simple rules:

Starting Point: The first step to consider is: What projects will the system include? Like any other administrative operation, cost control is an expense. To be profitable, it should be applied to jobs where potential savings warrant the added work. But each plant should find some project cost, say $50,000, above which yardsticks will apply.

Biggest factor in determining the starting point, says Mahoney, is company size. A large plant, saving 1% on a $2-million investment, for example, could justify the expense of cost control better than could a small plant saving a similar percentage on a $200,000 project.

But it's the small plant, with its improportionately high overhead, that has the greatest need for yardsticks. Engineering, like bulk chemicals, is cheaper in large quantities. And as a

*Formerly with Foster D. Snell, Inc., and more recently in project management with James P. O'Donnell, Engrs. (New York).

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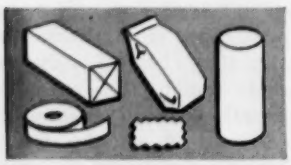

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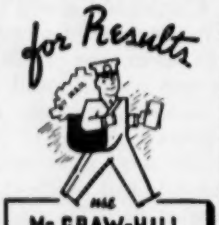

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study by James P. O'Donnell shows (*see graph*), the small company pays more for indirect costs, gets less for its plant dollar than does the large investor.

Accurate Audit: The second step in organizing effective cost controls is the establishment of a comprehensive accounting system. For yardsticks can't be applied to lumped charges, which fail to show how much money is being spent on individual activities.

The necessary breakdown requires that charges be allocated in strict adherence to clearly defined terms. For example, work involved in the preparation of final drawings is usually classified as drafting and should be charged as such, even if it is done by another department. Otherwise, drafting performed by engineers and written off as engineering would be a lost charge. And comparison with yardsticks would erroneously indicate that engineering costs were out of line.

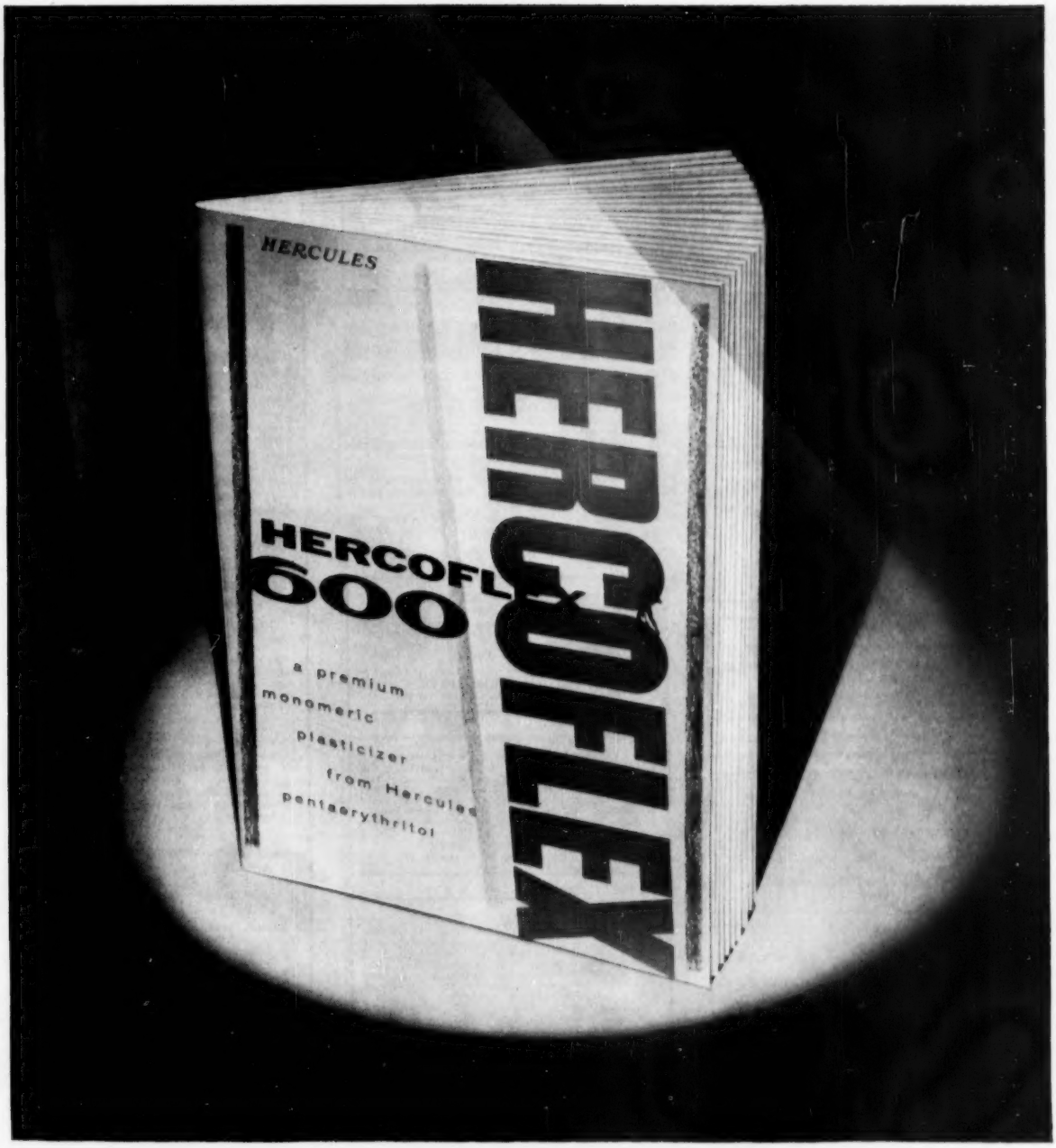
Likewise, small jobs delegated to the maintenance department often require some design and drafting. But without a breakdown of the time spent on these functions, there's no chance for yardsticks to show the true efficiency of the maintenance operation.

A contingent benefit of accurate accounting is the help it provides in allocating charges for tax purposes. Often there are advantages to be gained by capitalizing expenditures rather than by treating them as current accounts. But, warns Mahoney, be consistent in handling charges, don't shift them for tax advantages.

Delegate Authority: Though accounting is an essential tool of cost control, it's only as good as the man who uses it. The entire program is usually the responsibility of the project engineer or engineering manager. To do the job right he must have management's backing, authority equal to the responsibility. And most important, he must be able to cut across departmental lines.

The manner of organizing the enforcement system will depend on the size and complexity of the company. Mahoney has observed that small firms generally prefer a vertical (project type) arrangement that places full responsibility with one man. This method provides a maximum of flexibility, gets the project completed with the greatest speed and economy.

Large companies, on the other



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hand, may find that a horizontal (departmental) arrangement is more satisfactory for training and personnel administration purposes. And where the total cost of the job warrants it, a vertical system can be used to further coordinate and speed the over-all operation of the departmental system.

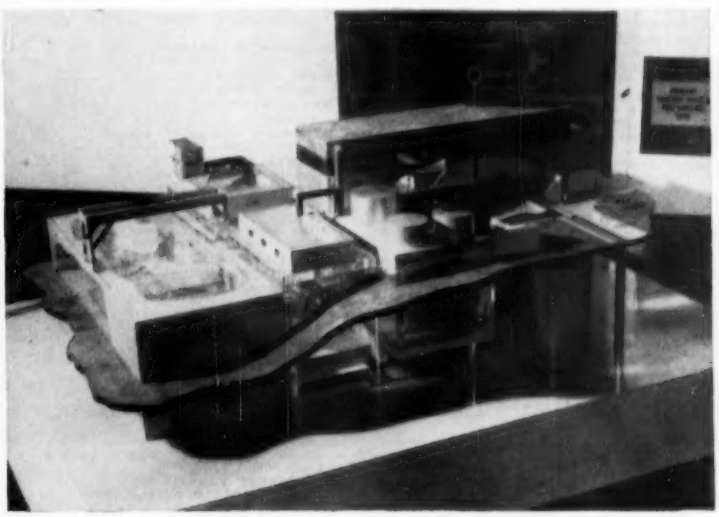
Cost Comparison: The final phase of implementing the program is setting up the yardsticks. Each company must decide for itself just what guides will satisfy its own particular needs. Those without experience in various types of projects should seek outside help rather than guess at yardsticks. But plants that have completed many internal projects, can utilize their past experiences as a starting point.

Some of the most important costs to watch are the indirect charges, such as design engineering and drafting. Workable yardsticks for these factors may often show that a packaged plant would be more economical than an original design; or that a job could be done more cheaply by an outside contractor.

The values for the yardsticks can be obtained from cost estimates on internal jobs, from breakdowns supplied by subcontractors, and from actual cost records. They should be evaluated in some constant term, such as percentage of the total project cost, to eliminate variations caused by changing dollar values.

Too, it may be necessary to have more than one yardstick for a given cost. For instance, a 12% charge for engineering might be normal for a one-of-a-kind reactor, but high for something like a tank farm where one design is repeated many times.

Corrections Indicated: Good cost control may show up surprising results in a particular company. Yardsticks may show that high costs are caused by too many draftsmen per engineer, resulting in a poor work balance and overworked engineers. Or they may convince management that enlisting outside help is the cheapest way



Tabletop Ambassador

AMONG U. S. representatives at the August atoms-for-peace conference in Geneva will be 10 scale-model reactors (*see above*). Transparent inserts will give Palais des Nations visitors a cutaway view of how typical atomic power and research reactors operate. Though the official exhibit will be strictly non-commercial, it's no secret that many of the American contributors hope to attract a sizable share of the booming foreign market in atomic energy.

to handle hectic boom-and-bust demands.

For another thing, yardsticks may show that research and maintenance activities, as well as engineering and construction work, would be more profitable if farmed out on a contract basis.

For large companies, the yardstick system of cost control may uncover many unexpected savings. Very often, observes Mahoney, big plants tend to accept high costs with resignation instead of going all out to bring them down. But with accurate guides to pinpoint the numerous minor extravagances, they will probably find the cumulative savings well worth the effort.

And cost control is even more important to the small processor. With higher overhead cutting into profits, small plants find it more difficult to attract money from investors. The only way they can overcome this handicap, Mahoney believes, is through intensive individual and cooperative efforts to cut costs right across the board.

Collectively, the small manufacturers can abet their cause by forming associations to act as a central agency in setting up standards and seeking favorable tax legislation. But individually, each plant must rely on its own ingenuity in the use of prefabricated construction, shortcut drafting and engineering methods (models and photography), and the judicious enlistment of outside help to cut cost corners.

Time to Act: In the final analysis, cost control is good insurance for investments. And like any other kind of insurance, the sooner it is taken out, the sooner it will yield a dividend.

Yardsticks don't come ready-made—nor do they spring up in full bloom overnight. You can start with simple things—pumps, motors, heat exchangers—at first and build the program gradually. But the important thing to do, thinks Mahoney, is decide now—then act.

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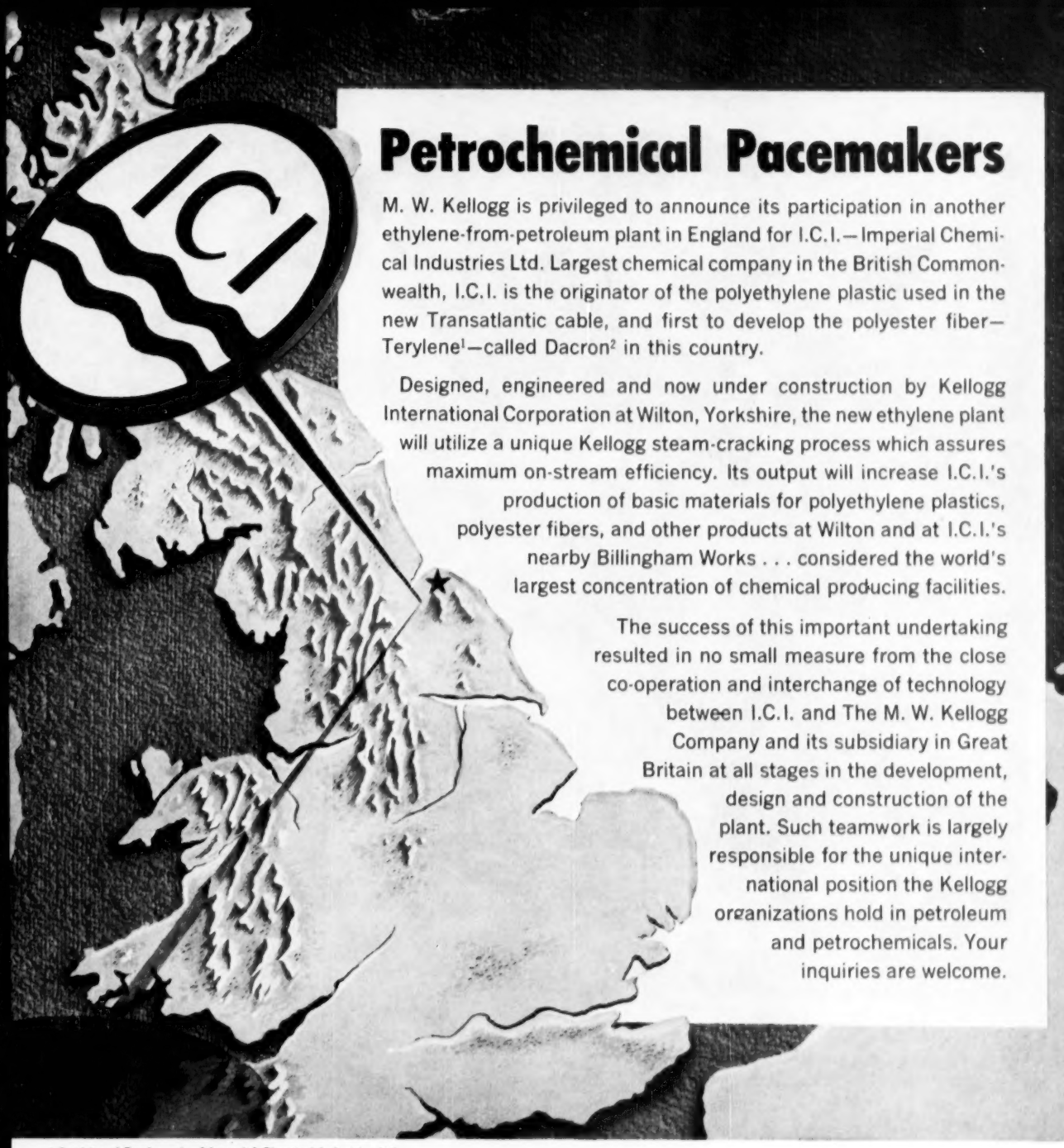

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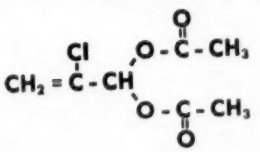

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